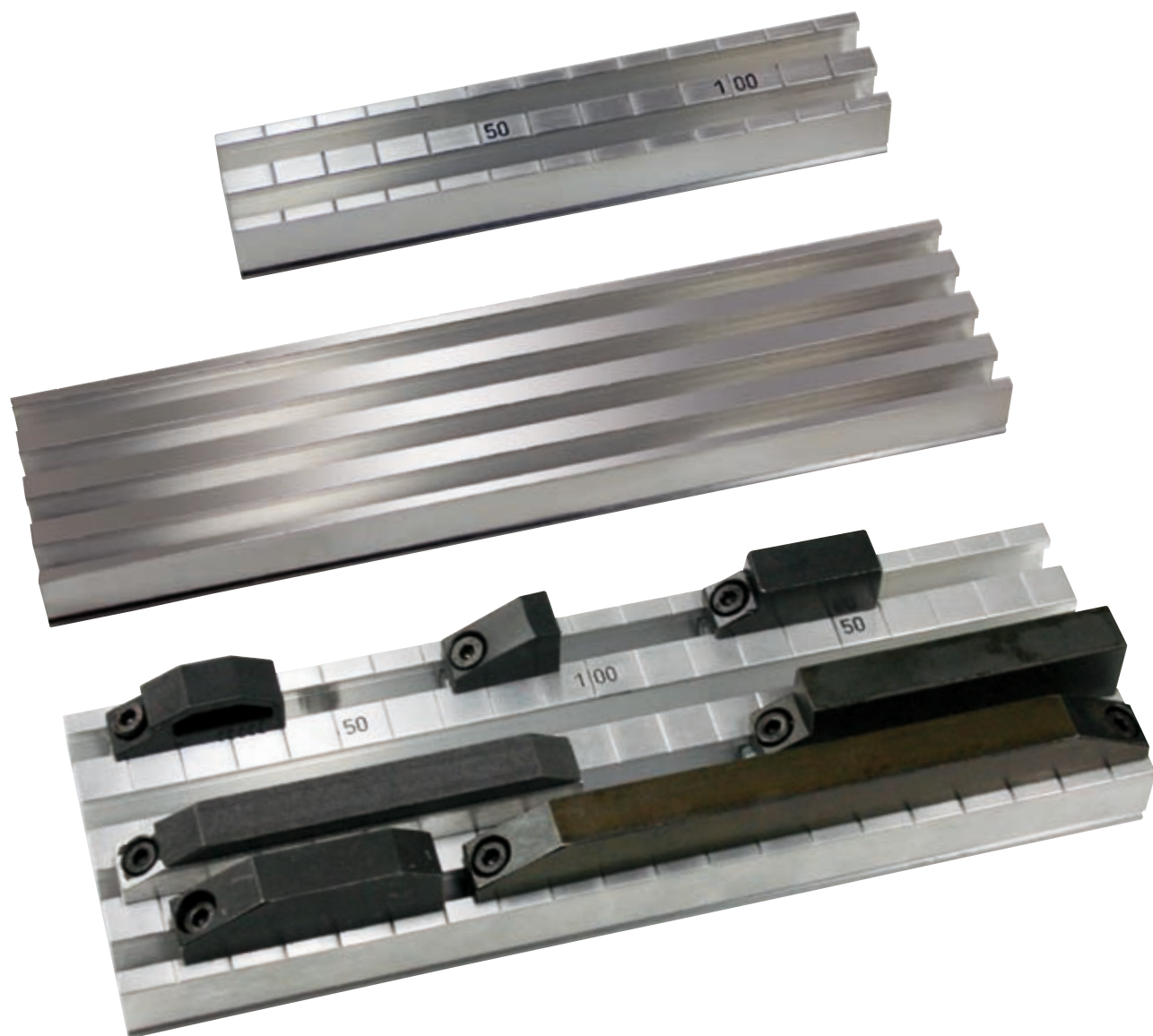


Cams, T-slot trip dogs

Catalogue N-NT/12





Caution!

The devices presented in this range are not intended for private consumers, i.e. they are not consumer products within the meaning of the European Directives (in Germany within the meaning of Section 5 GPSG) or other national laws. Assembly and commissioning of the devices requires personnel with the appropriate basic electrotechnical training or require personnel who have been initiated accordingly.

Subject to technical modifications and errors. The data specified in this catalogue are carefully checked typical standard values.

Descriptions of technical correlations, details on external control units, installation and operating instructions or similar have been provided to the best of our knowledge. However, this does not mean that warranted characteristics or other properties under liability law may be assumed which extend beyond the "General Terms of Delivery of Products and Services of the Electrical Industry".

We trust you will understand that the user must therefore check our information and recommendations before using our equipment.

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Design features

T-slot trip dogs

Selected logically arranged and task-specific cams, fastened in T-slot sections, give defined control signals in programmed form to a multi-position switch or similar. This type of control system operates without code and without encrypted data and is clear for the operator to understand. In addition, tolerances which arise due to tool wear, material tolerances and temperature fluctuations etc. may be directly counterbalanced.

It is frequently easier and more economical to solve positioning tasks in mechanical engineering, machine tool and plant construction in this way than by using NC and CNC technology or by using several individual position switches. A range of useful electromechanical and electronic combination possibilities is likewise available.

In addition to the multi-position switch, cams and fastening slots represent essential components of the electromechanical control system. In this respect the range covers the most diverse tasks :

- For lengthwise movements: cams and T-slot trip dogs according to catalogue N-NT/12.
- For rotational movements : radial cams, T-slot cam semicircles and T-slot cam drums according to catalogue N-TR/12.
- For signalling: multi-position switch with electromechanical mode of operation according to catalogue RP/12.

T-slot trip dogs

Our trip dogs comply with DIN 69 638: "Slot profiles and slot divisions".

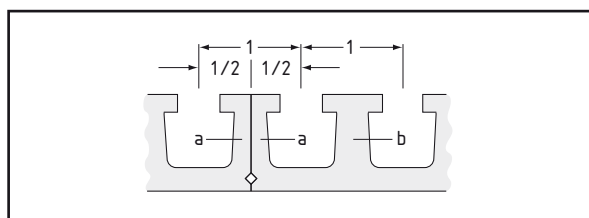
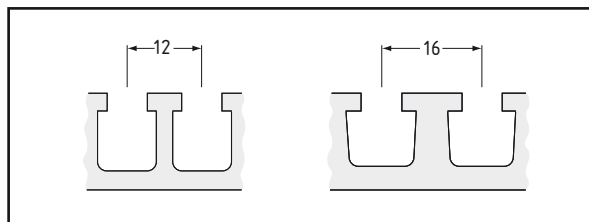
In order to take different spatial circumstances, mechanical stability and handling into consideration, slot divisions are supplied with 12 mm and 16 mm slot spacing to DIN 69638.

The slot strips are made from extruded aluminium from an Al Mg Si 05 alloy and hardened warm. The tolerance is less than the permissible tolerance for extruded profiles in accordance with DIN 17 615. The degree of hardness of the according to Brinell is 800 N/mm².

The delivery range contains single and multiple slot strips up to 3,000 mm long. Raw lengths with approx. 3.200 mm are available upon request.

The external slot pegs are dimensioned such that they correspond to half a peg and can be lined up in combination. The slot spacing of 12 mm or 16 mm is still assured as long as no more than 3 sections are arranged in line.

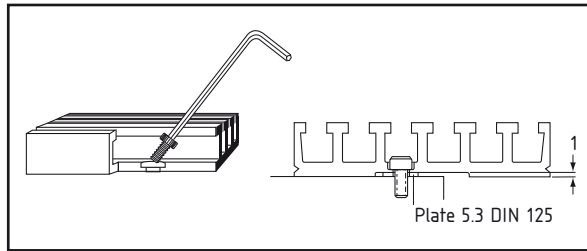
The stringing together of slot strips is useful particularly in the case of odd numbers of slots or spacing. For reasons of simplicity, a further option in such cases is to use the multiple slot strip with the next higher number of slots.



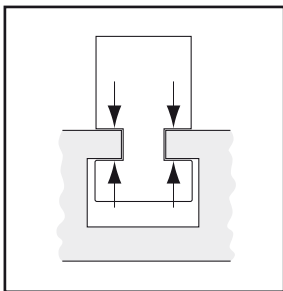
Combination ability of the profiles

Clamping in the T-section

The T-slot clamping effects non-positive two-surface press fit and ensures that the cam is held with the best possible retention force, even at rapid speeds. Moreover, the even distribution of the clamping forces provides long-term stability of the cam positioning without risk of deformation, even when activated frequently.



The clamping ensures that the cam is automatically held at a constant height in the T section, which facilitates the accurate adjustment and presetting of the cam programs.



Possibilities for fastening

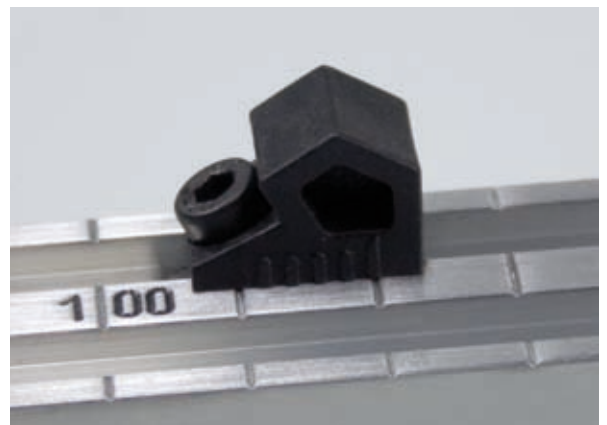
The slot strips are fixed using M 4 x 8 hexagon socket screws to DIN 912 through the trip dog base. Counter-sinking is necessary in order to facilitate the unobstructed sliding of the cam over the screw heads. Slot strips with corresponding fixing drilled holes are available as an option.

The insertion of the fixing screws must take place from the front of the T-slot, because the screw heads are larger than the width of the slots (slot strips with broad one-sided fixing edge: price and delivery time upon request).

Precise cam positioning

All slot strips are available with cm engraving. The dividing scale lines are 0.5 mm wide and milled with sharp edges. An alignment accuracy of 0.5 mm can be achieved with this process in conjunction with mm engraving on cams. If test gauges are also used, this value can be increased to 0.1 mm.

The marking goes from left to right at distances of 50 mm (inch engraving et al.: price and delivery time upon request).



Design features

Cams

Version of cams

The following versions of cams are available depending on the configuration and ambient conditions :

- Cams for mechanical actuation
 - Cams made of solid steel (hardened)
 - All-plastic cams
 - Combination-cams with plastic insert in Al cam carriers
 - Composite (long) cams
 - Precision cams
 - Precision adjustable cams
 - Special cams
- Cams for non-contact signalling (proximity cams)

The standardised cam height is 12.5 mm to DIN 69 639. The traditional cam heights of 14 mm and 16 mm are, however, also still prevalent (the risks of mixed use on one the and the same machine are explicitly pointed out). Our cams can be used for slot spacing of 12 mm and 16 mm.

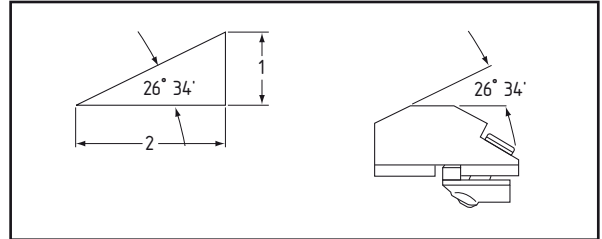
The surface of the cam bodies are protected against corrosion, mechanically actuated steel cams are additionally hardened (approx. 60 HRC). Plastic parts consist of special wear-resistant material.

The slot bolts are manufactured as zinc diecast parts and dimensioned such that extensive press fitting results in the T-sections. M 4 hexagon socket screws are used for fastening.

The slot bolts are tightened by springs. The advantage of this is that the contact with the support surface is also present when screws are slightly loosened, thereby facilitating fine adjustment through gentle sliding.

Fixing takes place using M 4 x 12 hexagon socket screws to DIN 912 (ISO 4762). By way of standard, the cam is inserted from the front of the T-slot trip dogs or, using the order supplement ...-V, from above the T-slots (refer to special information on page 26).

Depending on the type and length of the cams, versions with 2 slot bolts or with additional clamping feet are also available in order to support safe, long-term stable positioning.

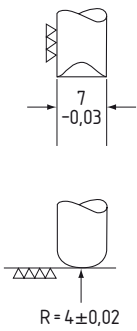


The uniform approach angle for mechanically actuated cams is 26° 34' (DIN 69 639), corresponding to an incline of the approach angle of 1:2. This means: if the intended path correction of the cam is 2 mm, the plunger of the multi-position switch performs a stroke of 1 mm.

Plastic cam bodies are particularly recommended from the perspective of their wear-resistance and switching point stability in connection with rounded plungers. Plastic cams also facilitate higher starting speeds.

Approach angle 26° 34'	Position switch with chisel plunger	Roll plunger
Plastic cams	45 m/min.	60 m/min
Steel cams	12 m/min	30 m/min

However, the steel version should be favored for rough operation because it is less sensitive to impact and high temperatures.



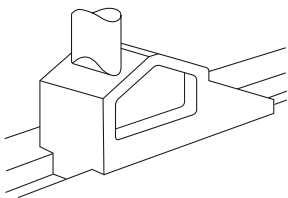
Wear of cams and switch plungers

The pairing of cam / switch plunger can lead to very different signs of wear, for example to complete wearing out after fewer than 5,000 actuations or to practically no wear after more than 10,000,000 switch actuations.

The switch actuation using cams takes place in bursts with, in the event of an unfavourable configuration of both parts, can lead to more rapid damage occurring to either the plunger or cams.

Based on operating experience and trials over several years, we offer:

- High stability of the switching point through
 - limit switch plunger made from rust-resistant steel with rounded plunger top, hardened and bevelled, fine polished, and actuated by shock absorbing
 - plastic cams made from abrasion-resistant plastic. With this low-priced pair of steel/plastic materials
 - no abrasion can be measured after 30 million actuations on the starting area where switching takes place.



The configuration of the plunger top plays a significant role in wear and tear. Chisel plungers that have sharp edges and are burred have a chiselling effect and can damage both plastic cams and steel cams.

The sharp top edge of the plunger can similarly be considerably worn by plastic and steel cams, thereby quickly shifting the switching point.

High stability of the switching point is, however, a prerequisite for all series production. We therefore recommend when pairing with chisel plungers that the sharp edges of the plunger are rounded off by lightly polishing.

The plungers in the limit switches have no sharp edges on the top, but have polished rounded grinding (cylindrical grinding) with a radius of 4 mm to DIN 43 697 and a tolerance of $\pm 0,02$ mm. Furthermore, the distortion tolerance of the plunger enables the plunger/cam contact point to represent a line at all times. This plunger top design thereby guarantees the lowest wear to cam and plunger. In the case of steel cams, lubrication is important and prevents possible chafing of the cam. Lubrication is not necessary in the case of plastic cams, but is nevertheless recommended once during commissioning. Lubrication of the cam plunger top using established lubricants fundamentally significantly increases service life.

Test results

- a_1 = Wear to the cam
- a_2 = Wear to the plunger
- a_3 = Shifting of the switching point.

Conditions

- Actuations: 10.000.000
- Starting speed: 24 m/min
- Actuating force of the plunger: 2.5 kp
- Lubrication: once during commissioning

steel plunger/plastic cams (1)

Cams: slightly rounded at the tip. Resultant height loss 0.2 mm. No wear to approach angle.

$$a_1 < 0,01; a_2 < 0,01; a_3 < 0,03$$

Sharp-edged chisel plunger/plastic cam (2)

Cam: heavily rounded at the tip. Height loss 0.35 mm. Plunger: chisel tip rounded.

$$a_1 \sim 0,01; a_2 = 0,08; a_3 > 0,16$$

steel plunger / steel cam (3)

Cam: slightly rounded at the tip. Resultant height loss 0.15 mm. No wear to approach angle.

$$a_1 < 0,01; a_2 \sim 0,06; a_3 > 0,12$$

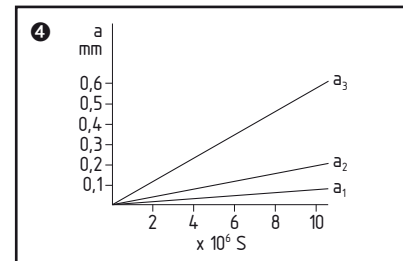
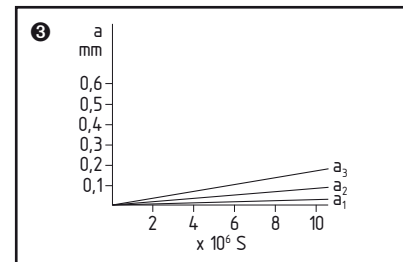
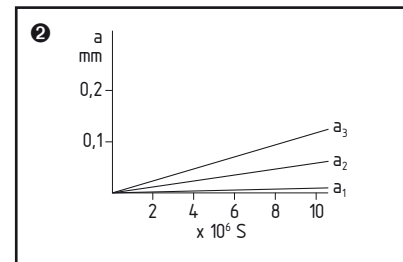
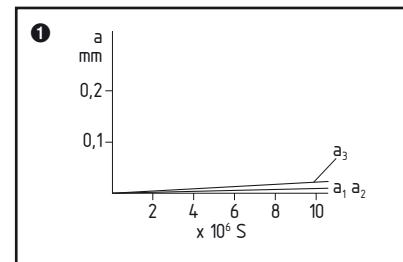
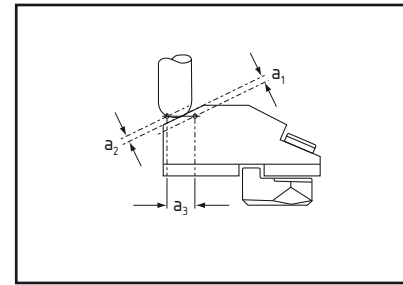
Sharp-edged chisel plunger/steel cam (4)

Cam: highly polished and slightly rounded. Plunger: chisel tip flattened.

$$a_1 = 0,08; a_2 = 0,20; a_3 = 0,56$$

Summary

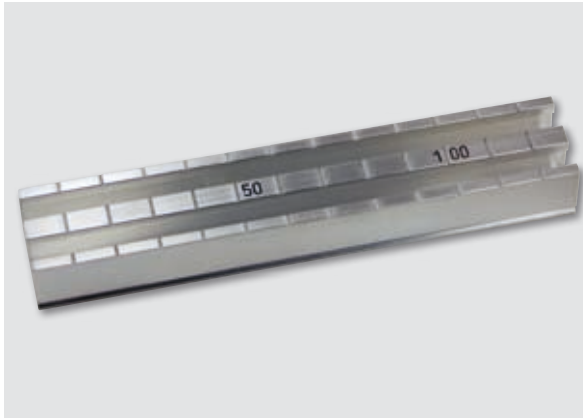
The least wear and therefore the longest service life results from application of the rounded steel plunger with the plastic cam. Even greater values are achieved by lubrication with established lubricants.



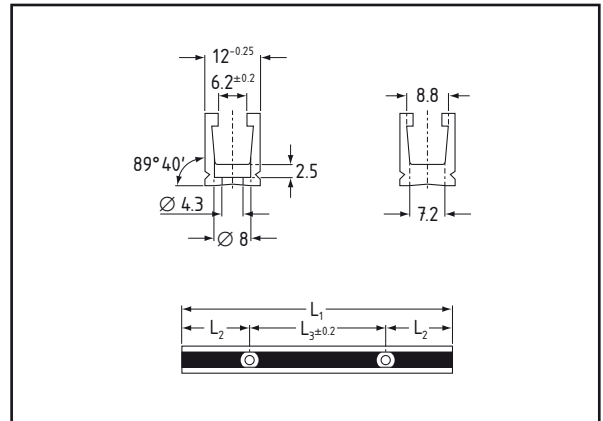
Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving



Version with 1 line														
Over- Distance of all drill holes* length			Basic version			with drilling			with engraving			with engraving and drilling		
L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 12.1/200	201 0011	101 0714									
250	25	200	NLA 12.1/250	201 0020	101 0715									
320	60	200	NLA 12.1/320	201 0038	101 0716									
400	50	300	NLA 12.1/400	201 0046	101 0717									
500	50	400	NLA 12.1/500	201 0054	101 0718									
650	125	400	NLA 12.1/650	201 0062	101 0719									
800	100	(2 x) 300	NLA 12.1/800	201 0071	101 0720									
1,000	50	(3 x) 300	NLA 12.1/1000	201 0089	101 0721									
1,250	25	(4 x) 300	NLA 12.1/1250	201 0097	101 0722									
1,500	150	(3 x) 400	NLA 12.1/1500	201 0101	101 0723									
1,750	75	(4 x) 400	NLA 12.1/1750	201 0119	101 0724									
2,000	100	(4 x) 450	NLA 12.1/2000	201 0127	101 0725									
2,500	125	(5 x) 450	NLA 12.1/2500	201 0135	101 0726									
3,000	150	(6 x) 450	NLA 12.1/3000	201 0143	101 0727									

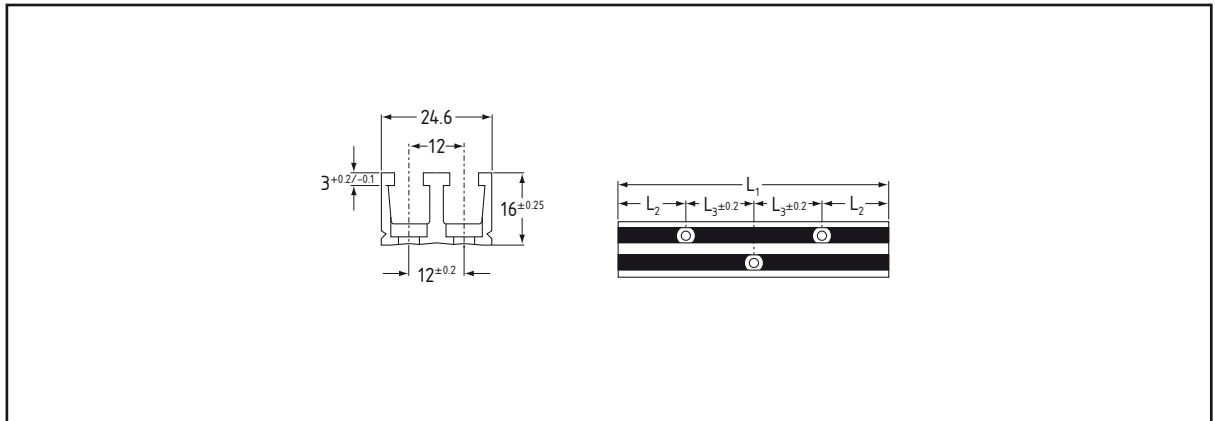
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 2 lines														
Over- all length			Basic version			with drilling			with engraving			with engraving and drilling		
L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 12.2/200	201 1000	101 0772									
250	25	200	NLA 12.2/250	201 1018	101 0773									
320	60	200	NLA 12.2/320	201 1026	101 0774									
400	50	300	NLA 12.2/400	201 1034	101 0775									
500	50	400	NLA 12.2/500	201 1042	101 0776									
650	125	400	NLA 12.2/650	201 1051	101 0777									
800	100	(2 x) 300	NLA 12.2/800	201 1069	101 0778									
1,000	50	(3 x) 300	NLA 12.2/1000	201 1077	101 0779									
1,250	25	(4 x) 300	NLA 12.2/1250	201 1085	101 0780									
1,500	150	(3 x) 400	NLA 12.2/1500	201 1093	101 0781									
1,750	75	(4 x) 400	NLA 12.2/1750	201 1107	101 0782									
2,000	100	(4 x) 450	NLA 12.2/2000	201 1115	101 0783									
2,500	125	(5 x) 450	NLA 12.2/2500	201 1123	101 0784									
3,000	150	(6 x) 450	NLA 12.2/3000	201 1131	101 0785									
Form supplement ... B, e.g. NLA 12.2/200B						201 1255	101 0788		201 1506	101 0802		201 1751	101 0816	
Form supplement ... G, e.g. NLA 12.2/200G						201 1263	101 0789		201 1514	101 0803		201 1760	101 0817	
Form supplement ... B, e.g. NLA 12.2/200B						201 1271	101 0790		201 1522	101 0804		201 1778	101 0818	
Form supplement ... G, e.g. NLA 12.2/200G						201 1280	101 0791		201 1531	101 0805		201 1794	101 0819	
Form supplement ... B, e.g. NLA 12.2/200B						201 1298	101 0792		201 1549	101 0806		201 1808	101 0820	
Form supplement ... G, e.g. NLA 12.2/200G						201 1301	101 0793		201 1557	101 0807		201 0039	101 0821	
Form supplement ... B, e.g. NLA 12.2/200B						201 1310	101 0794		201 1565	101 0808		201 1816	101 0822	
Form supplement ... G, e.g. NLA 12.2/200G						201 1328	101 0795		201 1573	101 0809		201 1824	101 0823	
Form supplement ... B, e.g. NLA 12.2/200B						201 1336	101 0796		201 1581	101 0810		201 1832	101 0824	
Form supplement ... G, e.g. NLA 12.2/200G						201 1344	101 0797		201 1590	101 0811		201 1841	101 0825	
Form supplement ... B, e.g. NLA 12.2/200B						201 1352	101 0798		201 1603	101 0812		201 1859	101 0826	
Form supplement ... G, e.g. NLA 12.2/200G						201 1361	101 0799		201 1611	101 0813		201 1867	101 0827	
Form supplement ... B, e.g. NLA 12.2/200B						201 1379	101 0800		201 1620	101 0814		201 1875	101 0828	
Form supplement ... G, e.g. NLA 12.2/200G						201 1387	101 0801		201 1638	101 0815		201 1883	101 0829	

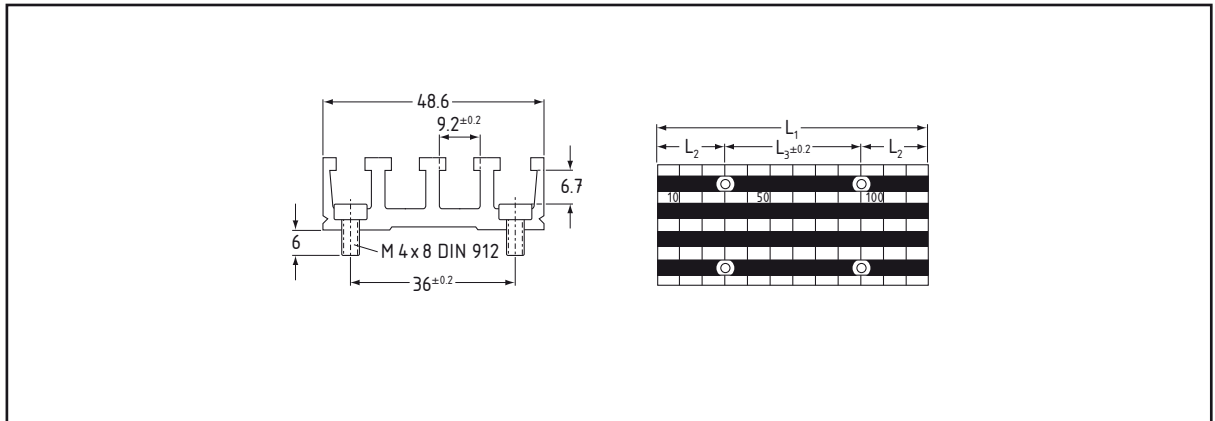
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving, screws do not form part of the scope of delivery

Version with 4 lines															
Over- all length	Distance of all drill holes*			Basic version			with drilling			with engraving			with engraving and drilling		
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 12.4/200	201 2804	101 0830	201 3053	101 0846	201 3304	101 0860	201 3550	101 0874				
250	25	200	NLA 12.4/250	201 2812	101 0831	201 3061	101 0847	201 3312	101 0861	201 3568	101 0875				
320	60	200	NLA 12.4/320	201 2821	101 0832	201 3070	101 0848	201 3321	101 0862	201 3576	101 0876				
400	50	300	NLA 12.4/400	201 2839	101 0833	201 3088	101 0849	201 3339	101 0863	201 3584	101 0877				
500	50	400	NLA 12.4/500	201 2847	101 0834	201 3096	101 0850	201 3347	101 0864	201 3592	101 0878				
650	125	400	NLA 12.4/650	201 2855	101 0835	201 3100	101 0851	201 3355	101 0865	201 3606	101 0879				
800	100	(2 x) 300	NLA 12.4/800	201 2863	101 0836	201 3118	101 0852	201 3363	101 0866	201 3614	101 0880				
1,000	50	(3 x) 300	NLA 12.4/1000	201 2871	101 0837	201 3126	101 0853	201 3371	101 0867	201 3622	101 0881				
1,250	25	(4 x) 300	NLA 12.4/1250	201 2880	101 0838	201 3134	101 0854	201 3380	101 0868	201 3631	101 0882				
1,500	150	(3 x) 400	NLA 12.4/1500	201 2898	101 0839	201 3142	101 0855	201 3398	101 0869	201 3649	101 0883				
1,750	75	(4 x) 400	NLA 12.4/1750	201 2901	101 0840	201 3151	101 0856	201 3401	101 0870	201 3657	101 0884				
2,000	100	(4 x) 450	NLA 12.4/2000	201 2910	101 0841	201 3169	101 0857	201 3410	101 0871	201 3665	101 0885				
2,500	125	(5 x) 450	NLA 12.4/2500	201 2928	101 0842	201 3177	101 0858	201 3428	101 0872	201 3673	101 0886				
3,000	150	(6 x) 450	NLA 12.4/3000	201 2936	101 0843	201 3185	101 0859	201 3436	101 0873	201 3681	101 0887				

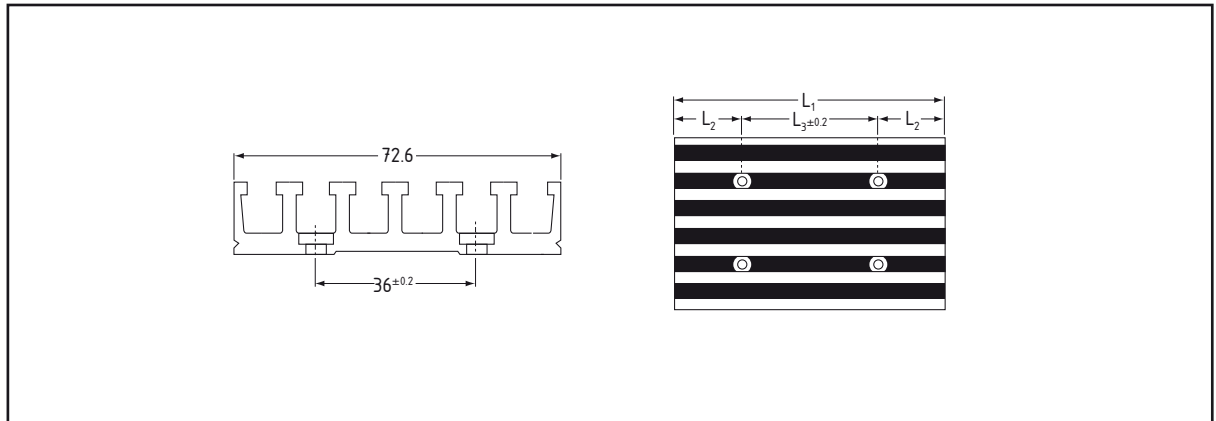
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 6 lines																
Over- all length	Distance of all drill holes*			Basic version			with drilling			with engraving			with engraving and drilling			
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	
200	50	100	NLA 12.6/200	201 4203	101 0888		201 4459	101 0904		201 4700	101 0918		201 4955	101 0932		
250	25	200	NLA 12.6/250	201 4211	101 0889		201 4467	101 0905		201 4718	101 0919		201 4963	101 0933		
320	60	200	NLA 12.6/320	201 4220	101 0890	Form supplement ... B, e.g. NLA 12.6/200B	201 4475	101 0906		201 4626	101 0920		201 4971	101 0934		
400	50	300	NLA 12.6/400	201 4238	101 0891			201 4483	101 0907		201 4734	101 0921		201 4980	101 0935	
500	50	400	NLA 12.6/500	201 4246	101 0892			201 4491	101 0908		201 4742	101 0922		201 4998	101 0936	
650	125	400	NLA 12.6/650	201 4254	101 0893			201 4505	101 0909		201 4751	101 0923		201 5005	101 0937	
800	100	(2 x) 300	NLA 12.6/800	201 4262	101 0894			201 4513	101 0910		201 4769	101 0924		201 5013	101 0938	
1,000	50	(3 x) 300	NLA 12.6/1000	201 4271	101 0895			201 4521	101 0911		201 4777	101 0925		201 5021	101 0939	
1,250	25	(4 x) 300	NLA 12.6/1250	201 4289	101 0896			201 4530	101 0912		201 4785	101 0926		201 5030	101 0940	
1,500	150	(3 x) 400	NLA 12.6/1500	201 4297	101 0897			201 4548	101 0913		201 4793	101 0927		201 5048	101 0941	
1,750	75	(4 x) 400	NLA 12.6/1750	201 4301	101 0898			201 4556	101 0914		201 4807	101 0928		201 5056	101 0942	
2,000	100	(4 x) 450	NLA 12.6/2000	201 4319	101 0899			201 4564	101 0915		201 4815	101 0929		201 5064	101 0943	
2,500	125	(5 x) 450	NLA 12.6/2500	201 4327	101 0900			201 4572	101 0916		201 4823	101 0930		201 5072	101 0944	
3,000	150	(6 x) 450	NLA 12.6/3000	201 4335	101 0901			201 4581	101 0917		201 4831	101 0931		201 5081	101 0945	

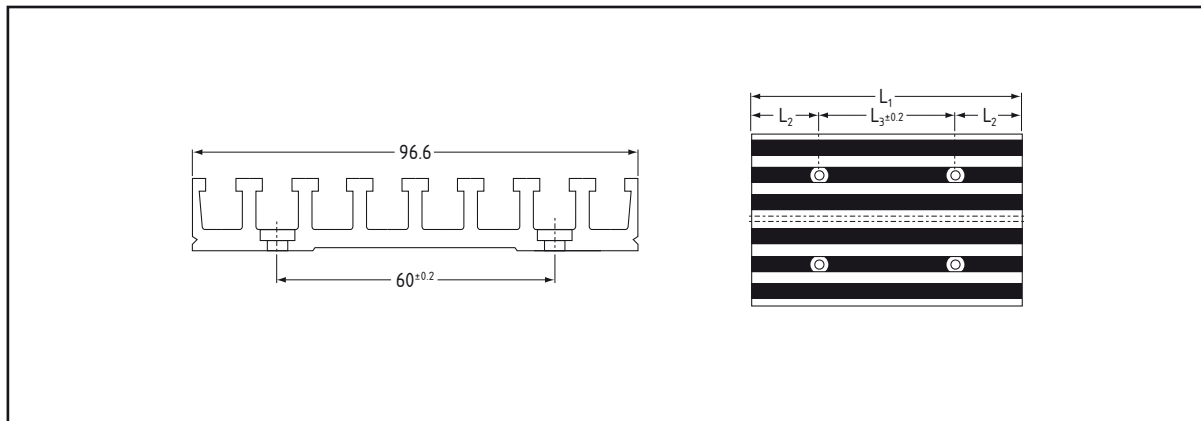
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 8 lines															
Over- all length	Distance of all drill holes*		Basic version			with drilling			with engraving			with engraving and drilling			
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 12.8/200	201 5200	101 0946	201 5455	101 0962	201 5706	101 0976	201 5951	101 0990				
250	25	200	NLA 12.8/250	201 5218	101 0947	201 5463	101 0963	201 5714	101 0977	201 5960	101 0991				
320	60	200	NLA 12.8/320	201 5226	101 0948	201 5471	101 0964	201 5722	101 0978	201 5978	101 0992				
400	50	300	NLA 12.8/400	201 5234	101 0949	201 5480	101 0965	201 5731	101 0979	201 5986	101 0993				
500	50	400	NLA 12.8/500	201 5242	101 0950	201 5498	101 0966	201 5749	101 0980	201 5994	101 0994				
650	125	400	NLA 12.8/650	201 5251	101 0951	201 5501	101 0967	201 5757	101 0981	201 6001	101 0995				
800	100	(2 ×) 300	NLA 12.8/800	201 5269	101 0952	201 5510	101 0968	201 5765	101 0982	201 6010	101 0996				
1,000	50	(3 ×) 300	NLA 12.8/1000	201 5277	101 0953	201 5528	101 0969	201 5773	101 0983	201 6028	101 0997				
1,250	25	(4 ×) 300	NLA 12.8/1250	201 5285	101 0954	201 5536	101 0970	201 5781	101 0984	201 6036	101 0998				
1,500	150	(3 ×) 400	NLA 12.8/1500	201 5293	101 0955	201 5544	101 0971	201 5790	101 0985	201 6044	101 0999				
1,750	75	(4 ×) 400	NLA 12.8/1750	201 5307	101 0956	201 5552	101 0972	201 5803	101 0986	201 6052	101 1000				
2,000	100	(4 ×) 450	NLA 12.8/2000	201 5315	101 0957	201 5561	101 0973	201 5811	101 0987	201 6061	101 1001				
2,500	125	(5 ×) 450	NLA 12.8/2500	201 5323	101 0958	201 5579	101 0974	201 5820	101 0988	201 6079	101 1002				
3,000	150	(6 ×) 450	NLA 12.8/3000	201 5331	101 0959	201 5587	101 0975	201 5838	101 0989	201 6087	101 1003				

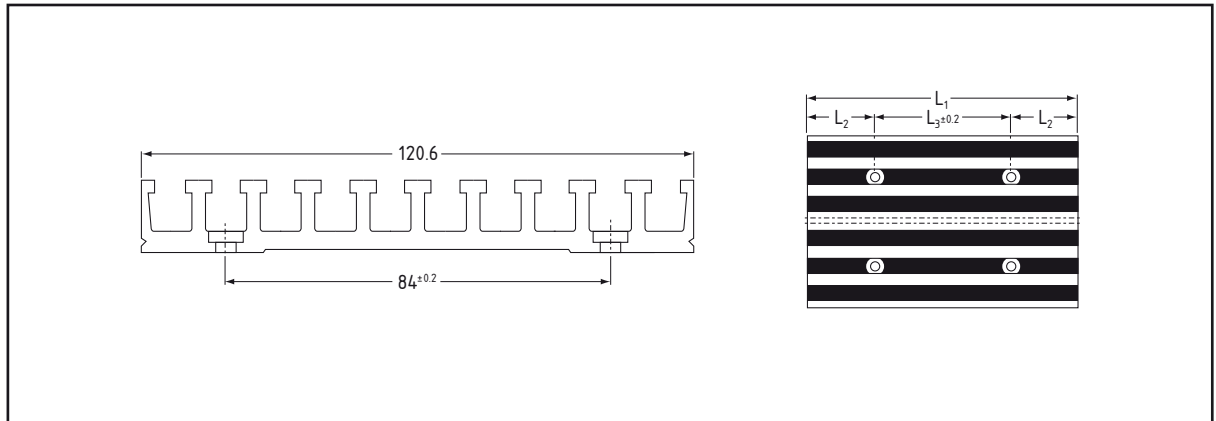
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 10 lines														
Over- all length	Distance of all drill holes*		Basic version			with drilling			with engraving			with engraving and drilling		
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.
200	50	100	NLA 12.10/200	201 6100	101 1004	Form supplement ...B, e.g. NLA 12.10/200B	201 6160	101 1033	201 6130	101 1019	Form supplement ...G, e.g. NLA 12.8/200G	201 6190	101 1046	
250	25	200	NLA 12.10/250	201 6102	101 1005		201 6162	101 1034	201 6132	101 1020		201 6191	101 1047	
320	60	200	NLA 12.10/320	201 6104	101 1006		201 6164	101 1035	201 6134	101 1021		201 6192	101 1048	
400	50	300	NLA 12.10/400	201 6106	101 1007		201 6166	101 1036	201 6136	101 1022		201 6193	101 1049	
500	50	400	NLA 12.10/500	201 6108	101 1008		201 6168	101 1037	201 6138	101 1023		201 6194	101 1050	
650	125	400	NLA 12.10/650	201 6110	101 1009		201 6170	103 0463	201 6140	101 1024		201 6195	101 1051	
800	100	(2 x) 300	NLA 12.10/800	201 6112	101 1010		201 6172	101 1038	201 6142	101 1025		201 6196	101 1052	
1,000	50	(3 x) 300	NLA 12.10/1000	201 6114	101 1011		201 6174	101 1039	201 6144	101 1026		201 6197	101 1053	
1,250	25	(4 x) 300	NLA 12.10/1250	201 6116	101 1012		201 6176	101 1040	201 6146	101 1027		201 6198	101 1054	
1,500	150	(3 x) 400	NLA 12.10/1500	201 6118	101 1013		201 6178	101 1041	201 6148	101 1028		201 6199	101 1055	
1,750	75	(4 x) 400	NLA 12.10/1750	201 6120	101 1014		201 6180	101 1042	201 6150	101 1029		201 6200	101 1056	
2,000	100	(4 x) 450	NLA 12.10/2000	201 6122	101 1015		201 6182	101 1043	201 6152	101 1030		201 6201	101 1057	
2,500	125	(5 x) 450	NLA 12.10/2500	201 6124	101 1016		201 6184	101 1044	201 6154	101 1031		201 6202	101 1058	
3,000	150	(6 x) 450	NLA 12.10/3000	201 6126	101 1017		201 6186	101 1045	201 6156	101 1032		201 6203	101 1059	

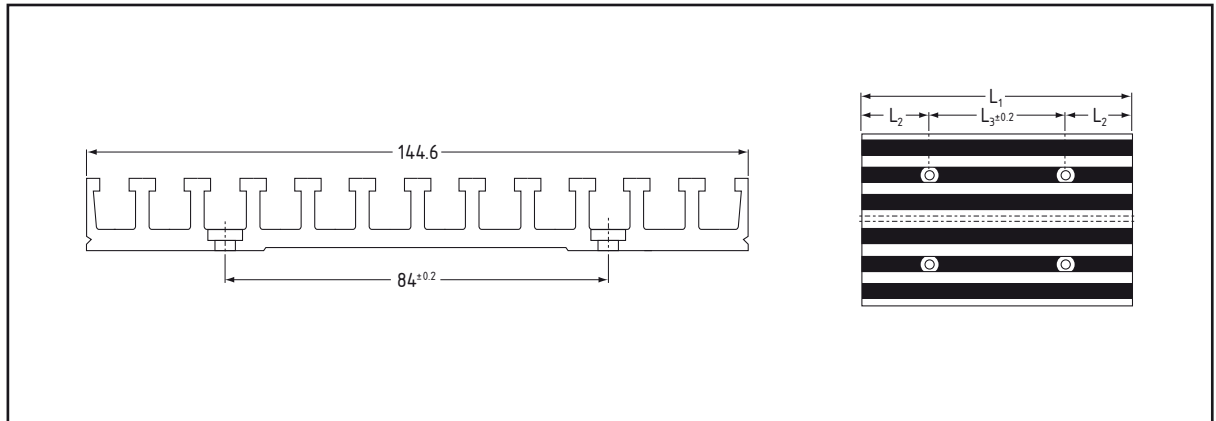
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 12 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 12 lines															
Over- all length	Distance of all drill holes*		Basic version			with drilling			with engraving			with engraving and drilling			
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100		NLA 12.12/200	201 6206	101 1060		201 6451	101 1075		201 6702	101 1089		201 6958	101 1103
250	25	200		NLA 12.12/250	201 6214	101 1061		201 6460	101 1076		201 6711	101 1090		201 6966	101 1104
320	60	200		NLA 12.12/320	201 6222	101 1062	Form supplement ...B, e.g. NLA 12.12/200B	201 6478	101 1077	Form supplement ...G, e.g. NLA 12.12/200G	201 6729	101 1091	Form supplement ...GB, e.g. NLA 12.12/200GB	201 6974	101 1105
400	50	300		NLA 12.12/400	201 6231	101 1063		201 6486	101 1078		201 6737	101 1092		201 6982	101 1106
500	50	400		NLA 12.12/500	201 6249	101 1064		201 6494	101 1079		201 6745	101 1093		201 6991	101 1107
650	125	400		NLA 12.12/650	201 6257	101 1065		201 6508	101 1080		201 6753	101 1094		201 7008	101 1108
800	100	(2 x) 300		NLA 12.12/800	201 6265	101 1066		201 6516	101 1081		201 6761	101 1095		201 7016	101 1109
1,000	50	(3 x) 300		NLA 12.12/1000	201 6273	101 1067		201 6524	101 1082		201 6770	101 1096		201 7024	101 1110
1,250	25	(4 x) 300		NLA 12.12/1250	201 6281	101 1068		201 6532	101 1083		201 6788	101 1097		201 7032	101 1111
1,500	150	(3 x) 400		NLA 12.12/1500	201 6290	101 1069		201 6541	101 1084		201 6796	101 1098		201 7041	101 1112
1,750	75	(4 x) 400		NLA 12.12/1750	201 6303	101 1070		201 6559	101 1085		201 6800	101 1099		201 7059	101 1113
2,000	100	(4 x) 450		NLA 12.12/2000	201 6311	101 1071		201 6567	101 1086		201 6818	101 1100		201 7067	101 1114
2,500	125	(5 x) 450		NLA 12.12/2500	201 6320	101 1072		201 6575	101 1087		201 6826	101 1101		201 7075	101 1115
3,000	150	(6 x) 450		NLA 12.12/3000	201 6338	101 1073		201 6583	101 1088		201 6834	101 1102		201 7083	101 1116

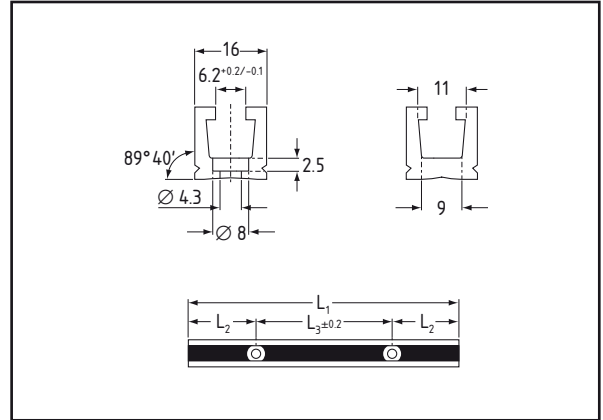
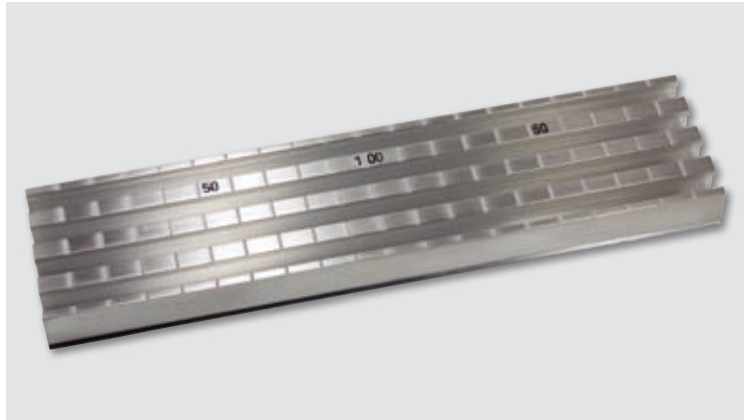
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 16 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 1 line														
Over- Distance of all drill holes* length			Basic version			with drilling			with engraving			with engraving and drilling		
L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 16.1/200	2020017	101 1118									
250	25	200	NLA 16.1/250	2020025	101 1119									
320	60	200	NLA 16.1/320	2020033	101 1120									
400	50	300	NLA 16.1/400	2020041	101 1121									
500	50	400	NLA 16.1/500	2020050	101 1122									
650	125	400	NLA 16.1/650	2020068	101 1123									
800	100	(2 x) 300	NLA 16.1/800	2020076	101 1124									
1,000	50	(3 x) 300	NLA 16.1/1000	2020084	101 1125									
1,250	25	(4 x) 300	NLA 16.1/1250	2020092	101 1126									
1,500	150	(3 x) 400	NLA 16.1/1500	2020106	101 1127									
1,750	75	(4 x) 400	NLA 16.1/1750	2020114	101 1128									
2,000	100	(4 x) 450	NLA 16.1/2000	2020122	101 1129									
2,500	125	(5 x) 450	NLA 16.1/2500	2020131	101 1130									
3,000	150	(6 x) 450	NLA 16.1/3000	2020149	101 1131									

Form supplement ...B, e.g. NLA 16.1/200B

Form supplement ...G, e.g. NLA 16.1/200G

Form supplement ...GB, e.g. NLA 16.1/200GB

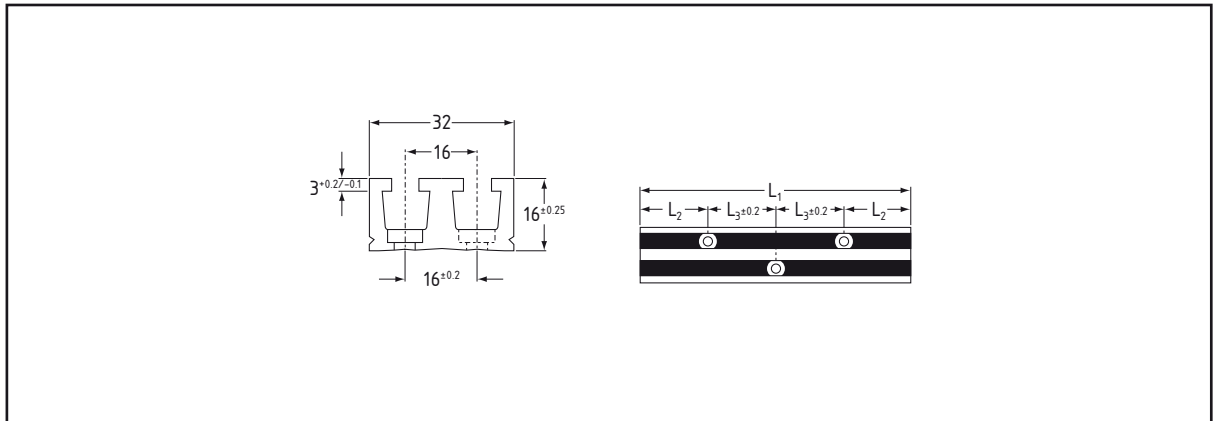
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 16 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 2 lines			Basic version			with drilling			with engraving			with engraving and drilling	
Over- all length	Distance of drill holes*		Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.
	L ₁ (mm)	L ₂ (mm)											
200	50	100	NLA 16.2/200	202 1005	101 1176								
250	25	200	NLA 16.2/250	202 1013	101 1177								
320	60	200	NLA 16.2/320	202 1021	101 1178								
400	50	300	NLA 16.2/400	202 1030	101 1179								
500	50	400	NLA 16.2/500	202 1048	101 1180								
650	125	400	NLA 16.2/650	202 1056	101 1181								
800	100	(2 x) 300	NLA 16.2/800	202 1064	101 1182								
1,000	50	(3 x) 300	NLA 16.2/1000	202 1072	101 1183								
1,250	25	(4 x) 300	NLA 16.2/1250	202 1081	101 1184								
1,500	150	(3 x) 400	NLA 16.2/1500	202 1099	101 1185								
1,750	75	(4 x) 400	NLA 16.2/1750	202 1102	101 1186								
2,000	100	(4 x) 450	NLA 16.2/2000	202 1111	101 1187								
2,500	125	(5 x) 450	NLA 16.2/2500	202 1129	101 1188								
3,000	150	(6 x) 450	NLA 16.2/3000	202 1137	101 1189								

Form supplement ... B, e.g. NLA 16.2/200B

Form supplement ... G, e.g. NLA 16.2/200G

Form supplement ... GB, e.g. NLA 16.2/200GB

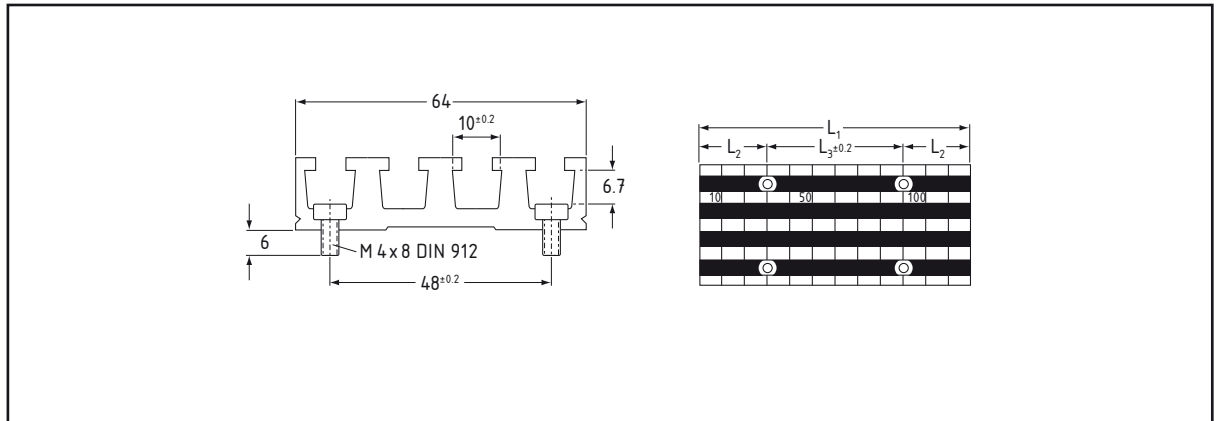
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 16 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving, screws do not form part of the scope of delivery

Version with 4 lines															
Over- all length	Distance of all drill holes*			Basic version			with drilling			with engraving			with engraving and drilling		
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 16.4/200	2022800	101 1233	2023059	101 1249	2023300	101 1263	2023556	101 1277				
250	25	200	NLA 16.4/250	2022818	101 1234	2023067	101 1250	2023318	101 1264	2023563	101 1278				
320	60	200	NLA 16.4/320	2022826	101 1235	2023075	101 1251	2023326	101 1265	2023571	101 1279				
400	50	300	NLA 16.4/400	2022834	101 1236	2023083	101 1252	2023334	101 1266	2023580	101 1280				
500	50	400	NLA 16.4/500	2022842	101 1237	2023091	101 1253	2023342	101 1267	2023598	101 1281				
650	125	400	NLA 16.4/650	2022851	101 1238	2023105	101 1254	2023351	101 1268	2023601	101 1282				
800	100	(2 x) 300	NLA 16.4/800	2022869	101 1239	2023113	101 1255	2023369	101 1269	2023610	101 1283				
1,000	50	(3 x) 300	NLA 16.4/1000	2022877	101 1240	2023121	101 1256	2023377	101 1270	2023628	101 1284				
1,250	25	(4 x) 300	NLA 16.4/1250	2022885	101 1241	2023130	101 1257	2023385	101 1271	2023636	101 1285				
1,500	150	(3 x) 400	NLA 16.4/1500	2022893	101 1242	2023148	101 1258	2023393	101 1272	2023644	101 1286				
1,750	75	(4 x) 400	NLA 16.4/1750	2022907	101 1243	2023156	101 1259	2023407	101 1273	2023652	101 1287				
2,000	100	(4 x) 450	NLA 16.4/2000	2022915	101 1244	2023164	101 1260	2023415	101 1274	2023661	101 1288				
2,500	125	(5 x) 450	NLA 16.4/2500	2022923	101 1245	2023172	101 1261	2023423	101 1275	2023679	101 1289				
3,000	150	(6 x) 450	NLA 16.4/3000	2022931	101 1246	2023181	101 1262	2023431	101 1276	2023687	101 1290				

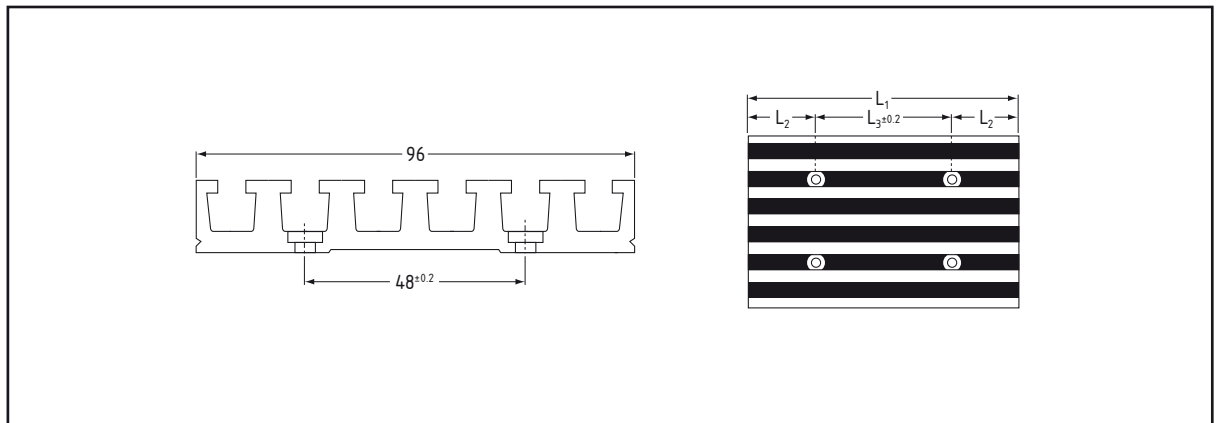
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Special drilling and engraving: upon request

Aluminium multiple slot strips, 16 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



Basic version = without drilling and engraving

Version with 6 lines															
Over- all length	Distance of all drill holes*		Basic version			with drilling			with engraving			with engraving and drilling			
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100		NLA 16.6/200	2024209	101 1291		2024454	101 1307		2024705	101 1321		2024951	101 1335
250	25	200		NLA 16.6/250	2024217	101 1292		2024462	101 1308		2024713	101 1322		2024969	101 1336
320	60	200		NLA 16.6/320	2024225	101 1293	Form supplement ...B, e.g. NLA 16.6/200B	2024471	101 1309	Form supplement ...G, e.g. NLA 16.6/200G	2024721	101 1323	Form supplement ...GB, e.g. NLA 16.6/200GB	2024977	101 1337
400	50	300		NLA 16.6/400	2024233	101 1294		2024489	101 1310		2024730	101 1324		2024985	101 1338
500	50	400		NLA 16.6/500	2024241	101 1295		2024497	101 1311		2024748	101 1325		2024993	101 1339
650	125	400		NLA 16.6/650	2024250	101 1296		2024501	101 1312		2024756	101 1326		2025001	101 1340
800	100	(2 x) 300		NLA 16.6/800	2024268	101 1297		2024519	101 1313		2024764	101 1327		2025019	101 1341
1,000	50	(3 x) 300		NLA 16.6/1000	2024276	101 1298		2024527	101 1314		2024772	101 1328		2025027	101 1342
1,250	25	(4 x) 300		NLA 16.6/1250	2024284	101 1299		2024535	101 1315		2024781	101 1329		2025035	101 1343
1,500	150	(3 x) 400		NLA 16.6/1500	2024292	101 1300		2024543	101 1316		2024799	101 1330		2025043	101 1344
1,750	75	(4 x) 400		NLA 16.6/1750	2024306	101 1301		2024551	101 1317		2024802	101 1331		2025051	101 1345
2,000	100	(4 x) 450		NLA 16.6/2000	2024314	101 1302		2024560	101 1318		2024811	101 1332		2025060	101 1346
2,500	125	(5 x) 450		NLA 16.6/2500	2024322	101 1303		2024578	101 1319		2024829	101 1333		2025078	101 1347
3,000	150	(6 x) 450		NLA 16.6/3000	2024331	101 1304		2024586	101 1320		2024837	101 1334		2025086	101 1348

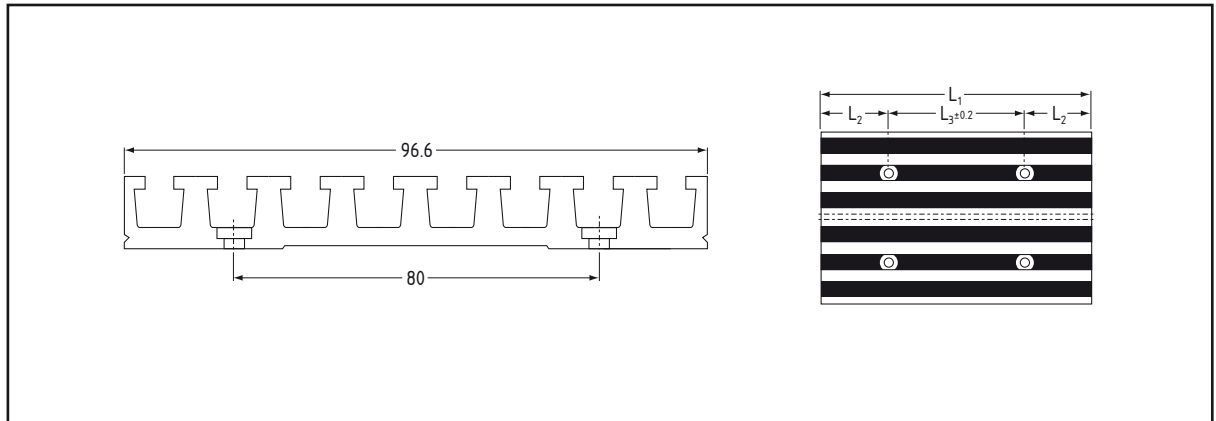
* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

Aluminium multiple slot strips, 16 mm slot spacing

Versions for profile rails to DIN 69 639 Form B

Delivery tables



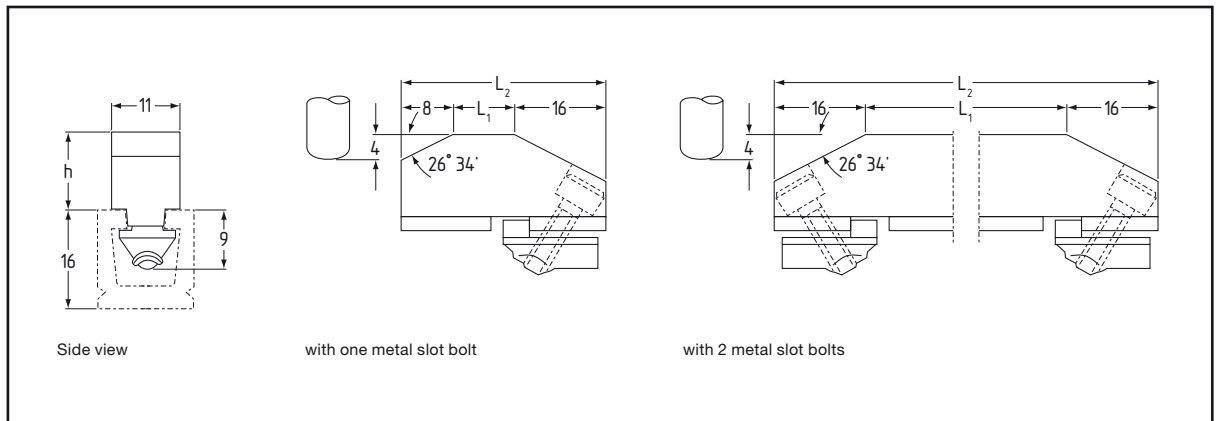
Basic version = without drilling and engraving

Version with 8 lines															
Over- all length	Distance of all drill holes*			Basic version			with drilling			with engraving			with engraving and drilling		
	L ₁ (mm)	L ₂ (mm)	L ₃ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
200	50	100	NLA 16.8/200	2026105	101 1349		2026205	101 1364		2026305	101 1378		2026405	101 1392	
250	25	200	NLA 16.8/250	2026110	101 1350		2026210	101 1365		2026310	101 1379		2026410	101 1393	
320	60	200	NLA 16.8/320	2026115	101 1351	Form supplement ...B, e.g. NLA 16.6/200GB	2026215	101 1366		2026315	101 1380		2026415	101 1394	
400	50	300	NLA 16.8/400	2026120	101 1352		2026220	101 1367		2026320	101 1381		2026420	101 1395	
500	50	400	NLA 16.8/500	2026125	101 1353		2026225	101 1368		2026325	101 1382		2026425	101 1396	
650	125	400	NLA 16.8/650	2026130	101 1354		2026230	101 1369		2026330	101 1383		2026430	101 1397	
800	100	(2 x) 300	NLA 16.8/800	2026135	101 1355		2026235	101 1370		2026335	101 1384		2026435	101 1398	
1,000	50	(3 x) 300	NLA 16.8/1000	2026140	101 1356		2026240	101 1371		2026340	101 1385		2026440	101 1399	
1,250	25	(4 x) 300	NLA 16.8/1250	2026145	101 1357		2026245	101 1372		2026345	101 1386		2026445	101 1400	
1,500	150	(3 x) 400	NLA 16.8/1500	2026150	101 1358		2026250	101 1373		2026350	101 1387		2026450	101 1401	
1,750	75	(4 x) 400	NLA 16.8/1750	2026155	101 1359		2026255	101 1374		2026355	101 1388		2026455	101 1402	
2,000	100	(4 x) 450	NLA 16.8/2000	2026160	101 1360		2026260	101 1375		2026360	101 1389		2026460	101 1403	
2,500	125	(5 x) 450	NLA 16.8/2500	2026165	101 1361		2026265	101 1376		2026365	101 1390		2026465	101 1404	
3,000	150	(6 x) 450	NLA 16.8/3000	2026170	101 1362		2026270	101 1377		2026370	101 1391		2026470	101 1405	

* Only for NLA ... B/GB. Intermediate lengths available; price is that of the next higher length. Please specify drilling distances L₂ and L₃ in the case of intermediate lengths.

Special drilling and engraving: upon request

NT ... s solid steel cams



NT ... s solid steel cams with 1 slot bolt

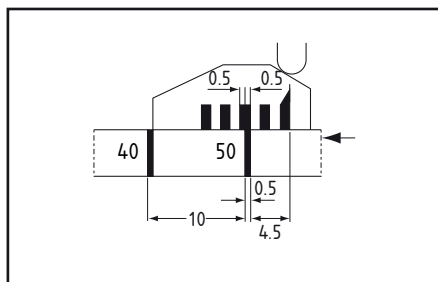
Length		Cam height h = 12.5 mm				Cam height h = 14 mm				Cam height h = 16 mm			
L ₁ (mm)	L ₂ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
0	16	NT 0.16 s	2210100	101 4811	NT 0.16.4 s	221 1505	101 4919	NT 0.16.42 s	221 5004	101 4947			
0	24	NT 0.24 s	2210207	101 4812	NT 0.24.4 s	221 1602	101 4920	NT 0.24.42 s	221 5101	101 4948			
4	28	NT 4.27 s	2210304	101 1870	NT 4.27.4 s	221 1700	101 1882	NT 4.27.42 s	221 5209	101 1892			
10	34	NT 10.33 s	2210401	101 1871	NT 10.33.4 s	221 1807	101 1883	NT 10.33.42 s	221 5306	101 1893			
16	40	NT 16.40 s	2210509	101 1873	NT 16.40.4 s	221 1904	101 1884	NT 16.40.42 s	221 5403	101 1894			
25	49	NT 25.48 s	2210606	101 1874	NT 25.48.4 s	221 2005	101 1885	NT 25.48.42 s	221 5501	101 1895			
40	64	NT 40.63 s	2210703	101 1875	NT 40.63.4 s	221 2102	101 1886	NT 40.63.42 s	221 5608	101 1897			
63	87	NT 63.86 s	2210801	101 1876	NT 63.86.4 s	221 2200	101 1888	NT 63.86.42 s	221 5705	101 1900			
80	104	NT 80.104 s	2210908	101 1878	NT 80.104.4 s	221 2307	101 1889	NT 80.104.42 s	221 5802	101 1901			
100	124	NT 100.124 s	2211009	101 1879	NT 100.124.4 s	221 2404	101 1890	NT 100.124.42 s	221 6507	101 1903			
140	164	NT 140.164 s	2211106	101 1880	NT 140.164.4 s	221 2501	101 1891	NT 140.164.42 s	221 6604	101 1904			

NT ... s solid steel cams with 2 slot bolts

100	132	NT 100.132 s	221 1050	101 4803	NT 100.132.4 s	221 2450	101 4889	NT 100.132.42 s	221 6550	101 4932			
140	172	NT 140.172 s	221 1110	101 4804	NT 140.172.4 s	221 2550	101 4890	NT 140.172.42 s	221 6650	101 4933			
224	256	NT 224.256 s	221 3001	101 4805	NT 224.256.4 s	221 3206	101 4891	NT 224.256.42 s	221 6701	101 4934			
375	407	NT 375.408 s	221 3109	101 4806	NT 375.408.4 s	221 3303	101 4892	NT 375.408.42 s	221 6809	101 4935			

Cams are supplied with slot bolt for lateral insertion as standard (slot bolt for insertion from above: order supplement "...V").

NTP ... s precision solid steel cams



The cams have a 9 mm long scale at the sides with divisions at 1 mm intervals, high contrast, alternating between a positive and negative structure. The first scale line on the cam coincides with the switching point of the multi-position switch, i.e. when the plunger of the multi-position switch has already completed a 2 mm slide stroke on the approach angle of the cam, in accordance with the standard DIN 43 697.

The cam to be adjusted is initially set to the nearest full centimetre of the size required. The mm alignment then takes place using the mm scale of the cam. The precise adjustment of the cams to 0.5 mm setting accuracy is facilitated through the different line thicknesses of the two scales to 0.5 mm on the trip dog and to 1 mm on the cam, depending on the position of the outer edges of the scale line.

The division accuracy of the cam engraving is Level 2, in accordance with DIN 866; this corresponds to ± 0.05 mm per running metre. The figures on the trip dog are at intervals of 5 cm and go from left to right.

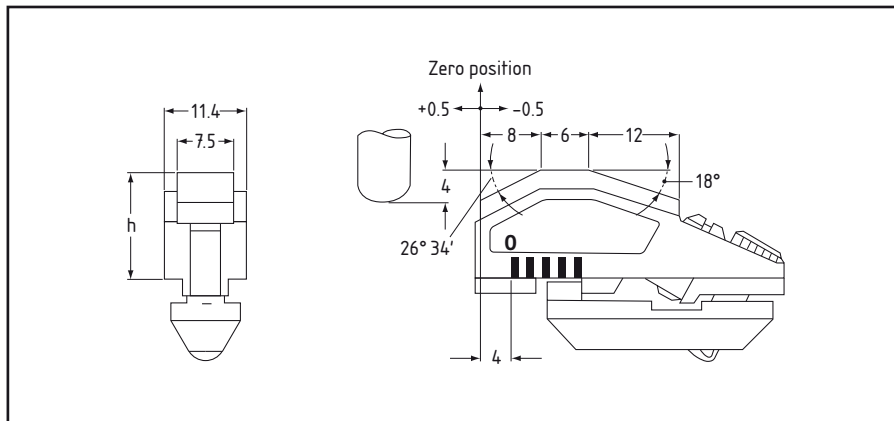
Delivery table for NTP ... s precision solid steel cams

Length		Cam height h = 12.5 mm				Cam height h = 14 mm				Cam height h = 16 mm			
L ₁ (mm)	L ₂ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.			
0	16	NTP	0.16 s	221 2400	101 1916	NTP	0.16.4 s	221 3309	101 1927	NTP	0.16.42 s	221 4208	101 1939
0	24	NTP	0.24 s	221 2451	101 1917	NTP	0.24.4 s	221 3350	101 1928	NTP	0.24.42 s	221 4259	101 1940
4	28	NTP	4.27 s	221 2507	101 1918	NTP	4.27.4 s	221 3406	101 1929	NTP	4.27.42 s	221 4305	101 1941
10	34	NTP	10.33 s	221 2558	101 1919	NTP	10.33.4 s	221 3457	101 1930	NTP	10.33.42 s	221 4356	101 1942
16	40	NTP	16.40 s	221 2604	101 1920	NTP	16.40.4 s	221 3503	101 1931	NTP	16.40.42 s	221 4402	101 1943
25	49	NTP	25.48 s	221 2655	101 1921	NTP	25.48.4 s	221 3554	101 1932	NTP	25.48.42 s	221 4453	101 1944
40	64	NTP	40.63 s	221 2701	101 1922	NTP	40.63.4 s	221 3601	101 1933	NTP	40.63.42 s	221 4500	101 1945
63	87	NTP	63.86 s	221 2752	101 1923	NTP	63.86.4 s	221 3651	101 1934	NTP	63.86.42 s	221 4551	101 1946
80	104	NTP	80.104 s	221 2809	101 1924	NTP	80.104.4 s	221 3708	101 1935	NTP	80.104.42 s	221 4607	101 1947

Cams are supplied with slot bolt for lateral insertion as standard (slot bolt for downward insertion: order supplement "...V").

Dimensions: see Page 18.

NTF ... precision adjustable cams



NTF/NIF precision adjustable cams solve the problems which sometimes arise in practice with cam control systems, where the pre-adjusted size is slightly changed when the not yet finally tightened clamping screw is then tightened.

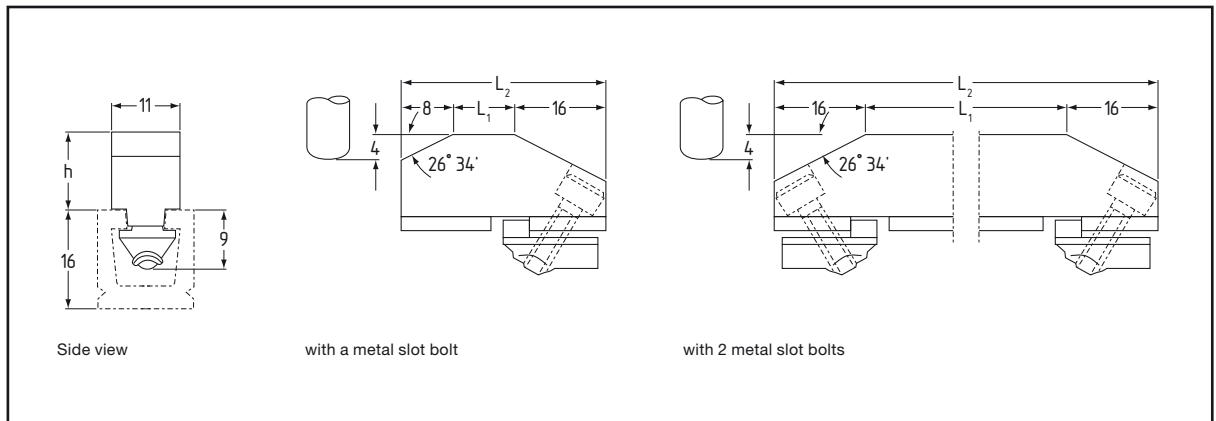
In order to also be able to perform those applications which demand the greatest possible accuracy, precision adjustable cams have been developed, which can be finely adjusted to ± 0.5 mm.

Pre-adjustment takes place using the mm scale (see precision solid steel cams); fine adjustment using a screw driver and where applicable also with the aid of test gauges for accuracy levels to hundredths of millimetres. Special design measures ensure the secure positioning of the cams in subsequent operation.

Delivery table for NTF ... precision adjustable cams

Cam height h = 12.5 mm			Cam height h = 14 mm			Cam height h = 16 mm		
Form	Catalogue no.	Order no.	Form	Catalogue no.	Order no.	Form	Catalogue no.	Order no.
NTF 6.40	2230101	101 1948	NTF 6.40.4	2230607	101 1949	NTF 6.40.42	2231107	101 1950

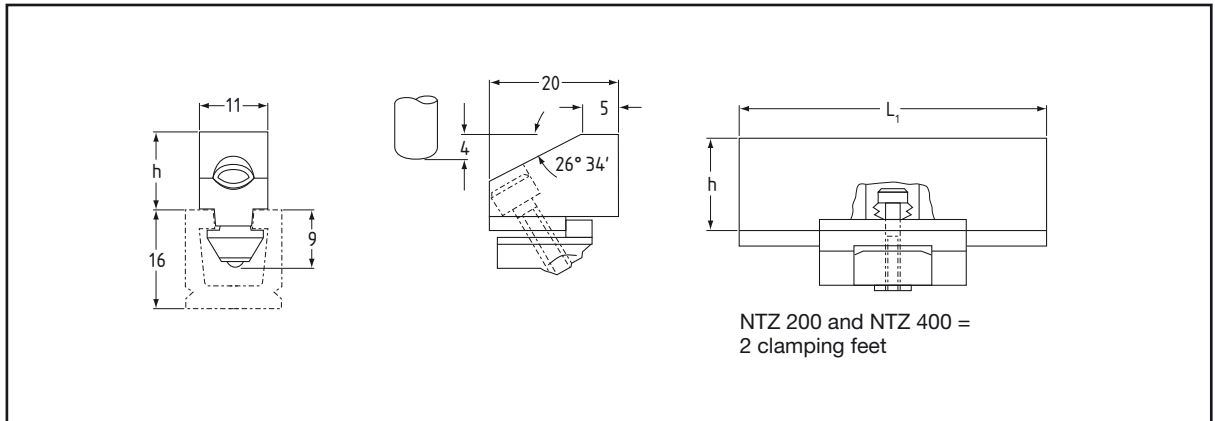
NT ...all-plastic cams



NT ... all-plastic cams with mm scale (see precision solid steel cams)													
Length		Cam height h = 12.5 mm				Cam height h = 14 mm				Cam height h = 16 mm			
L ₁ (mm)	L ₂ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.			
0	17	NT	0.16	220 0058	101 4822	NT	0.16.4	220 0309	101 4916	–	–	–	
0	24	NT	0.24	220 0104	101 4823	NT	0.24.4	220 0350	101 4917	–	–	–	
4	27	NT	4.27	220 0155	101 4824	–	–	–	–	–	–	–	
10	33	NT	10.33	220 0201	101 4825	NT	10.33.4	220 0457	101 5045	–	–	–	
NT ... all-plastic cams with mm scale (see precision solid steel cams)													
0	16	–	–	–	–	–	–	NT	0.16.42	220 0502	101 4945		
0	24	–	–	–	–	–	–	NT	0.24.42	220 0504	101 4946		
4	27	–	–	–	–	NT	4.27.4	220 0406	101 5024	NT	4.27.42	220 0506	101 5039
10	33	–	–	–	–	–	–	NT	10.33.42	220 0508	101 5046		
16	40	NT	16.40	220 0210	101 5030	NT	16.40.4	220 0460	101 5025	NT	16.40.42	220 0510	101 5040
25	49	NT	25.48	220 0212	101 5031	NT	25.48.4	220 0462	101 5029	NT	25.48.42	220 0512	101 5041
40	64	NT	40.63	220 0214	101 5032	NT	40.63.4	220 0464	101 5026	NT	40.63.42	220 0514	101 5042
63	87	NT	63.86	220 0216	101 5033	NT	63.86.4	220 0466	101 5027	NT	63.86.42	220 0516	101 5043
80	104	NT	80.104	220 0218	101 5034	NT	80.104.4	220 0468	101 5028	NT	80.104.42	220 0518	101 5044
Ditto, with 2 slot bolts													
100	132	NT	100.132	220 0220	101 4799	NT	100.132.4	220 0470	101 4897	NT	100.132.42	220 0520	101 4940
140	172	NT	140.172	220 0222	101 4800	NT	140.172.4	220 0472	101 4898	NT	140.172.42	220 0522	101 4941
224	256	NT	224.256	220 0224	101 4801	NT	224.256.4	220 0474	101 4899	NT	224.256.42	220 0524	101 4942
375	407	NT	375.408	220 0226	101 4802	NT	375.408.4	220 0476	101 4900	NT	375.408.42	220 0526	101 4943

Cams are supplied with slot bolt for lateral insertion as standard (slot bolt for insertion from above: order supplement "...V").

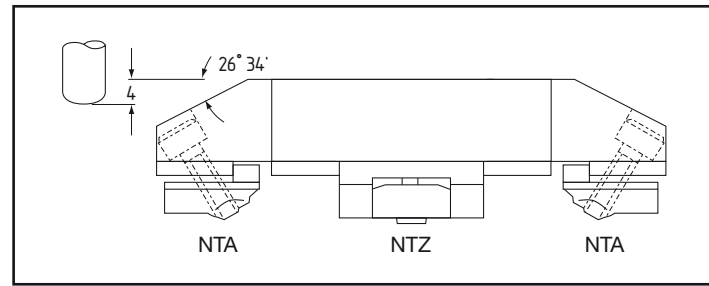
NTA ... and NTZ composite (long) cams



Composite cams, as illustrated, comprise two end cams with approach angle and one or several intermediate cams across which the desired number of actuating lengths can be created.

The end cams are fastened with the standard slot bolt and the intermediate cams with one or two clamping feet.

Composite cams made of solid steel or all-plastic are available.



Solid steel version, end cams									
Length L_1 (mm)	Cam height $h = 12.5$ mm			Cam height $h = 14$ mm			Cam height $h = 16$ mm		
	Form	Catalogue Order no.	Catalogue Order no.	Form	Catalogue Order no.	Catalogue Order no.	Form	Catalogue Order no.	Catalogue Order no.
	NTA 5.20 s	224 4004	101 4827	NTA 5.20.4 s	224 4209	101 4888	NTA 5.20.42 s	224 4403	101 4923
Solid steel version, intermediate cams									
50	NTZ 50 s	224 4802	101 4827	NTZ 50.4 s	224 5302	101 5049	NTZ 50.42 s	224 5809	101 5053
100	NTZ 100 s	224 4900	101 5038	NTZ 100.4 s	224 5400	101 5050	NTZ 100.42 s	224 5906	101 5054
200	NTZ 200 s	224 5001	101 1961	NTZ 200.4 s	224 5500	101 1963	NTZ 200.42 s	224 6007	101 1965
400	NTZ 400 s	224 5108	101 1962	NTZ 400.4 s	224 5604	101 1964	NTZ 400.42 s	224 6104	101 1966
All-plastic version, end cams									
	NTA 5.20	224 0050	101 4826	NTA 5.20.4	224 0254	101 4887	NTA 5.20.42	224 0505	101 4924
All-plastic version, intermediate cams									
50	NTZ 50	224 0807	101 5035	NTZ 50.4	224 1307	101 5047	NTZ 50.42	224 1803	101 5051
100	NTZ 100	224 0904	101 5036	NTZ 100.4	224 1404	101 5048	NTZ 100.42	224 1901	101 5052
200	NTZ 200	224 1005	101 1951	NTZ 200.4	224 1501	101 1956	NTZ 200.42	224 2001	101 1959
400	NTZ 400	224 1102	101 1952	NTZ 400.4	224 1609	101 1958	NTZ 400.42	224 2109	101 1960

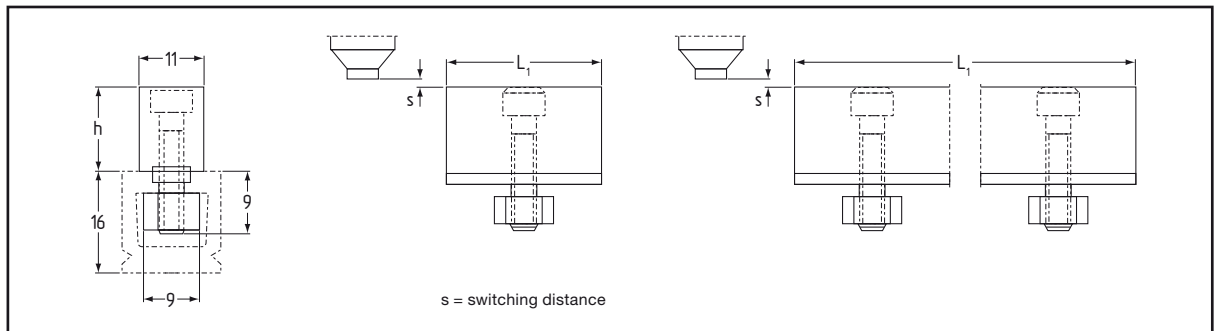
Lateral insertion only is possible in the T-slot!

Proximity cams

Solid steel version

for inductive multi-position switches

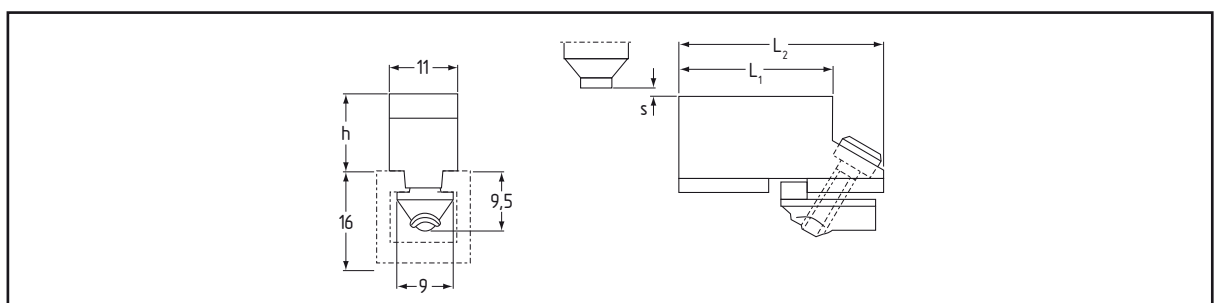
Design A



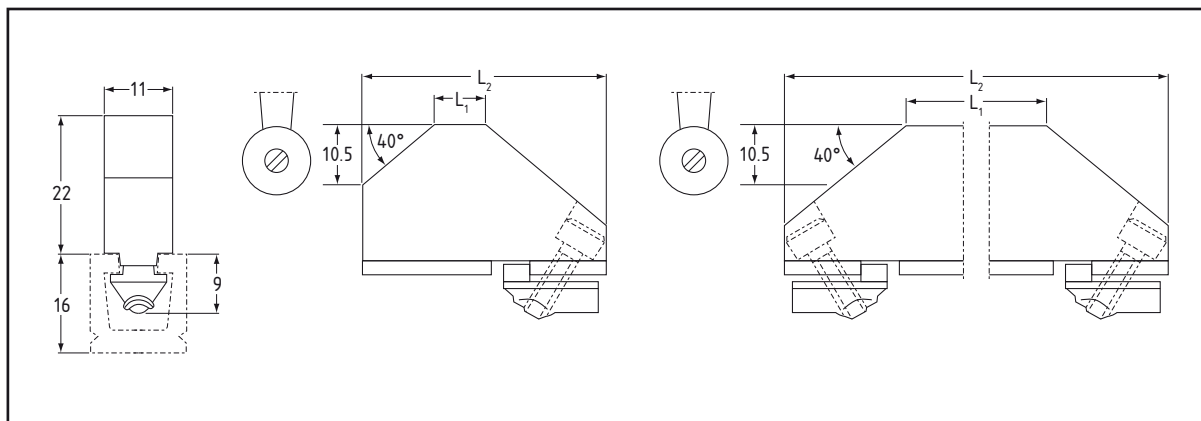
Design A with 1 metal slot bolt													
Length		Cam height h = 12.5 mm				Cam height h = 14 mm				Cam height h = 16 mm			
L ₁ (mm)	L ₂ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
4		NI 4.16	2280108	101 5062	NI 4.16.4	2281805	101 5077	NI 4.16.42	2283001	101 5092			
10		NI 10	2280205	101 5063	NI 10.4	2281902	101 5078	NI 10.42	2283011	101 5093			
16		NI 16	2280302	101 5064	NI 16.4	2282003	101 5079	NI 16.42	2283022	101 5094			
25		NI 25	2280400	101 5065	NI 25.4	2282101	101 5080	NI 25.42	2283033	101 5095			
40		NI 40	2280507	101 5066	NI 40.4	2282208	101 5081	NI 40.42	2283044	101 5096			
63		NI 63	2280604	101 5067	NI 63.4	2282305	101 5082	NI 63.42	2283055	101 5097			
100		NI 100	2280701	101 5068	NI 100.4	2282402	101 5083	NI 100.42	2283066	101 5098			
Design A with 2 metal slot bolts													
140		NI 140	2280809	101 5073	NI 140.4	2282500	101 5088	NI 140.42	2283077	101 5103			
224		NI 224	2280820	101 5074	NI 224.4	2282566	101 5089	NI 224.42	2283088	101 5104			
375		NI 375	2280830	101 5075	NI 375.4	2282577	101 2042	NI 375.42	2283099	101 5105			
Design B with 1 metal slot bolt													
4	16	NI 04.16	2284600	101 5061	NI 04.16.4	2284610	101 5076	NI 04.16.42	2284620	101 5091			
10	18	NI 10.18	2284601	101 5069	NI 10.18.4	2284611	101 5084	NI 10.18.42	2284621	101 5099			
16	24	NI 16.24	2284602	101 5070	NI 16.24.4	2284612	101 5085	NI 16.24.42	2284622	101 5100			
25	33	NI 25.33	2284603	101 5071	NI 25.33.4	2284613	101 5086	NI 25.33.42	2284623	101 5101			
40	48	NI 40.48	2284604	101 5072	NI 40.48.4	2284614	101 5087	NI 40.48.42	2284624	101 5102			
63	71	NI 63.72	2284605	101 2047	NI 63.72.4	2284615	101 2050	NI 63.72.42	2284625	101 2053			
100	108	NI 100.108	2284608	101 2048	NI 100.108.4	2284618	101 2051	NI 100.108.42	2284628	101 2054			
140	148	NI 140.148	2284609	101 2049	NI 140.148.4	2284619	101 2052	NI 140.148.42	2284630	101 2055			

Cams are supplied with slot bolt for lateral insertion as standard (slot bolt for insertion from above: order supplement "...V").

Design B



NTH ... high all-plastic cams
for actuating single position switches
with roller lever

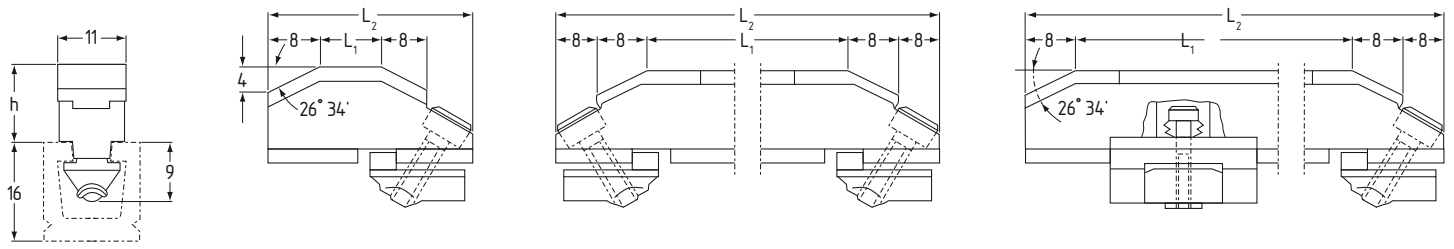


Delivery table high all-plastic NTH cams with 1 metal slot bolt				
Length		Cam height h = 22 mm		
L ₁ (mm)	L ₂ (mm)	Form	Catalogue no.	Order no.
0	33	NTH 0.33.22	227 4000	101 2026
6	40	NTH 6.40.22	227 4011	101 2027
15	48	NTH 15.48.22	227 4022	101 2028
30	63	NTH 30.63.22	227 4033	101 2029
53	86	NTH 53.86.22	227 4044	101 2030
Ditto with 2 metal slot bolts				
90	131	NTH 90.132.22	227 4055	101 2031
130	171	NTH 130.172.22	227 4066	101 2032
214	255	NTH 214.256.22	227 4077	101 2033
365	406	NTH 365.408.22	227 4088	101 2034

Cams are supplied with slot bolt for lateral insertion as standard (slot bolt for insertion from above: order supplement "...V").

NT ... A/K combination cams

Plastic cam insert in Al cam body



Delivery table with 1 metal slot bolt

Length		Cam height h = 12.5 mm			Cam height h = 14 mm			Cam height h = 16 mm		
L ₁ (mm)	L ₂ (mm)	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.	Form	Cata- logue no.	Order no.
0	16	NT 0.16 A	2200601	1014813	NT 0.16.4 A	2201208	1014921	NT 0.16.42 A	2201801	1014944
0	24	NT 0.24 A	2200651	1014814	NT 0.24.4 A	2201259	1014908	NT 0.24.42 A	2201852	1014949
4	28	NT 4.27 A	2200708	1014815	NT 4.27.4 A	2201305	1014909	NT 4.27.42 A	2201909	1014950
10	34	NT 10.33 A	2200759	1014816	NT 10.33.4 A	2201356	1014910	NT 10.33.42 A	2201950	1014951
16	40	NT 16.40 A	2200805	1014817	NT 16.40.4 A	2201402	1014911	NT 16.40.42 A	2202000	1014952
25	49	NT 25.48 A	2200856	1014818	NT 25.48.4 A	2201453	1014912	NT 25.48.42 A	2202051	1014953
40	64	NT 40.63 A	2200902	1014819	NT 40.63.4 A	2201500	1014913	NT 40.63.42 A	2202107	1014954
63	87	NT 63.86 A	2200953	1014820	NT 63.86.4 A	2201551	1014914	NT 63.86.42 A	2202158	1014955
80	104	NT 80.104 A	2201003	1014821	NT 80.104.4 A	2201607	1014915	NT 80.104.42 A	2202204	1014956

With 2 metal slot bolts

100	132	NT 100.132 A	2204053	1014807	NT 100.132.4 A	2204401	1014893	NT 100.132.42 A	2204801	1014936
140	172	NT 140.172 A	2204100	1014808	NT 140.172.4 A	2204452	1014894	NT 140.172.42 A	2204851	1014937
224	256	NT 224.256 A	2204151	1014809	NT 224.256.4 A	2204509	1014895	NT 224.256.42 A	2204908	1014938
375	407	NT 375.408 A	2204207	1014810	NT 375.408.4 A	2204550	1014896	NT 375.408.42 A	2204959	1014939

With clamping foot and one metal slot bolt, lateral insertion only in T-slot

40	64	NT 40.63 AK	2205602	1014792	NT 40.63.4 AK	2206307	1014901	NT 40.63.42 AK	2207001	1014925
63	87	NT 63.86 AK	2205653	1014793	NT 63.86.4 AK	2206358	1014902	NT 63.86.42 AK	2207052	1014926
80	104	NT 80.104 AK	2205700	1014794	NT 80.104.4 AK	2206404	1014903	NT 80.104.42 AK	2207109	1014927
100	124	NT 100.124 AK	2205751	1014795	NT 100.124.4 AK	2206455	1014904	NT 100.124.42 AK	2207150	1014928
140	164	NT 140.164 AK	2205807	1014796	NT 140.164.4 AK	2206501	1014905	NT 140.164.42 AK	2207206	1014929
224	248	NT 224.248 AK	2205858	1014797	NT 224.248.4 AK	2206552	1014906	NT 224.248.42 AK	2207257	1014930
375	399	NT 375.400 AK	2205904	1014798	NT 375.400.4 AK	2206609	1014907	NT 375.400.42 AK	2207303	1014931

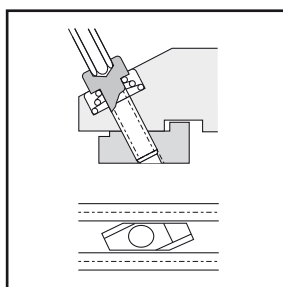
Cams are supplied with slot bolt for lateral insertion as standard (slot bolt for insertion from above: order supplement "...V").

Auxiliary equipment/information

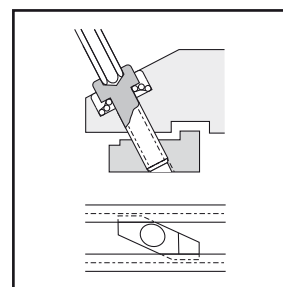
Individual parts for cam and slot bolt				
Part	Description	Form	Catalogue no.	Order no.
Slot bolt	Lateral insertion in T-slots for NT ... cams	NT 16-3	240 3006	100 3260
	Insertion from above in T-slots for NT ... -V cams	NT 16-4	240 3010	100 4310
	Insertion from above in T-slots for NI ... -V proximity cams	NI 4.14-2	240 3232	100 3259
	Lateral insertion in T-slots for NI ... proximity cams	NI 4.14-3	240 3236	100 2921
Clamping foot	For cam fastening through static friction for NTZ ... plastic cams and for NTS ... plastic cams	NTS 24K U 1	240 3307	101 2629
	For cam fastening through static friction for solid steel and other plastic cams	NTS 24K U 2	240 3309	101 2630

Fixing screws with hexagon socket for ...				
Part	Dimension	Norm	Order no.	
... NLA slot bolt	M 4 x 8	DIN 912 (ISO 4762)	100 3552	
... NT 16 ... / NI ... Form B slot bolts	M 4 x 12	DIN 912 (ISO 4762)	100 3553	
... NTD ... cam inserts	M 4 x 7	DIN 7991	100 4240	
... NI ... Form A slot bolts :				
- Cam height 12,5 mm	M 4 x 14	DIN 912 (ISO 4762)	100 3254	
- Cam height 14 mm	M 4 x 18	DIN 912 (ISO 4762)	100 3256	
- Cam height 16 mm	M 4 x 20	DIN 912 (ISO 4762)	100 3257	

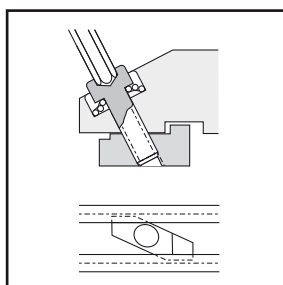
Assembly information for slot bolts for insertion of the cams from above into the T-slot (order supplement "V")



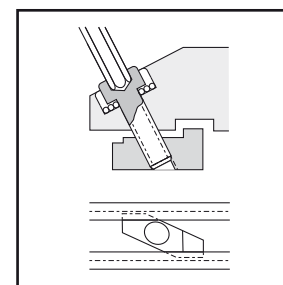
1. Insert cam from above.



2. Lightly depress spring and turn screw 30° to the right.



3. Release the spring.



4. Tighten the screw (without pressure on the spring).



Request

Account no. : _____ Phone : _____
Company : _____ Fax : _____
First name / Surname : _____ Email-Adress : _____
Street / Hausenumber : _____ Date : _____
Country / Town / Zip : _____

Please send us your quote for the following product(s) :

- T-slot trip dogs Cams

order no. *	catalogue no. *	part no. / description	Quantity
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Requested delivery date : _____

* in our download area on www.bremer-schaltelemente.de, you find our product catalogue with all order- and catalogue numbers

contact:

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Notes



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