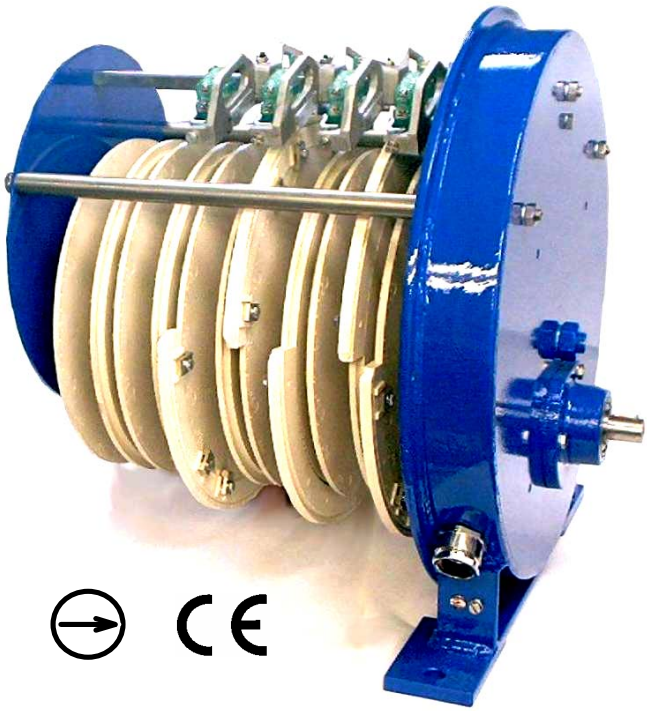
Geared Limit Switch

Geared Cam Limit Switch

LMVS

DITTELBACH UND KERZLER



- **Repeatability better 0,006°**
- **Ø 300mm cam discs**
- **Ball beared steel shafts**
- **Gearwheels made of steel**
- **Snap-action contacts with direct opening for safety applications according to VDE 0660 and EN 60947**

Switches of this type are designed for unrivalled high repeatability of switchpoints as well as easy adjustment of them. The gear wheels of steel are the guarantors for high lifetime. The stable ball bearing of the input shafts allow radial forces by chain drives.

Geared cam limit switches are used for monitoring, signalling and limiting movements with rotary drives. They switch, depending on the number of rotations of input shaft, the limit and the intervening points, if any. The gearing effects that the complete way of the movement between the end positions is reflected on 1 rotation of the cam-disc.

Geared cam limit switches type LMVS are equipped with special big cam-discs (300 mm diameter). The great diameter effects the excellent adjustability of the setpoints and the high repeatability better then 0,006° (on the cam-shaft). The flanks of the cams effect the switch-over and the high respectively low ranges of cam-discs between the flanks decide the switching positions of the switching elements. At an increasing flank the direct opening of the corresponding NC-contact is guaranteed (no direct opening of switching element type "15"). The switching points can be adjusted to your likes first with a coarse-setting and afterwards with a fine-setting. Up to 24 cam discs and 24 switching elements enable the same number of individual adjustable set-points.

The high section of the cam disc is 60° long, the low section 300°. The high section can be shortened to minimum 5°. For getting the best repeatability of the switching points, the gear ratio should be chosen in that way, that the complete way of the plant between two limit points should be winded up on an utmost great section on the cam disc (but not greater 360°) (the longer the way on the cam disc, the better the resolution). There is no mechanical limit for the rotation of the cam-disc. Taylor made solutions e.g. with a potentiometers or else are possible.

The solid steel housing IP65 enables a high operating field. The stable design guarantees a long reliable time of operation.

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Geared Cam Limit Switch LMVS

Technical data

Conforms to standard	EN 60947, EN 60529
Type of enclosure	steel sheet, IP65
Housing colour	blue
Number of switching elements	up to 24
Cable inlet	2 x M25
Weight	up to 6 cam-discs 32 kg, up to 12 cam-discs 40 kg, up to 16 cam-discs 45 kg, up to 20 cam-discs 55 kg, up to 24 cam-discs 65 kg
Operation temperatur	-30°C up to 80°C
Mounting position	free

Selection of switching elements

Type **10**: 1 NO plus 1 NC, selfcleaning, silverplated, snap action, direct opening. AC-15 230VAC / 10A, DC-13 110VDC / 0,5A
Lifetime mechanical 10 million cycles
Lifetime electrical 1 Million cycles @: 230 VAC cos phi=1 : 0,5A, cos phi=0,7 : 0,3A.
380 VAC cos phi=1 : 0,5A, cos phi=0,7 : 0,3A. 24 VDC 0ms=4A
Repeatability 0,013°, hysteresis 0,6° (on the cam disc)

Type **13**: 1 NO plus 1 NC, selfcleaning, **gold plated** for lowest currents and tensions, snap action, direct opening,
AC-12 230VAC / 0,25A, DC-12 110VDC / 0,25A
Lifetime mechanical 10 million cycles
Repeatability 0,013°, hysteresis 0,6° (on the cam disc)

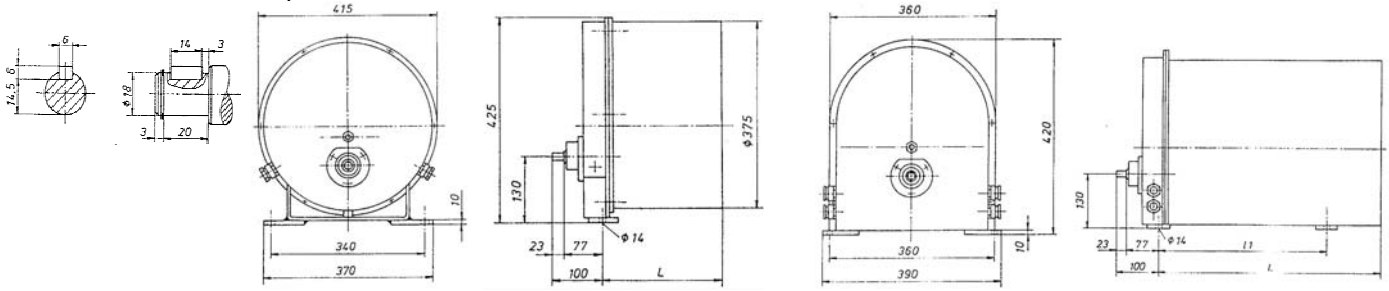
Typ **15**: Single-circuit two-way contact with **extrem high repeatability and low hysteresis**, snap action.
Lifetime electrical 25000 cycles @ AC 15A or 125 VDC 0,5A
Repeatability 0,006°, hysteresis 0,077° (on the cam disc)

Typ **16**: Single-circuit two-way contact, snap action, direct opening.
Lifetime mechanical 10 million cycles
Lifetime elektrical. 1 million cycles @: 230 VAC cos phi=1 : 16A, cos phi=0,8 : 16A.
380VAC cos phi=1: 12A, cos phi=0,8: 6A
110 VDC 0ms= 7A, 5ms= 2A
24 VDC 0ms= 16A, 5ms= 9A
Repeatability 0,033°, hysteresis 10,7° (on the cam disc)

Dimensions

up to 6 cam-discs L= 185
up to 12 cam-discs L= 335
up to 16 cam-discs L= 435

up to 20 cam-discs L= 530 l1= 400
up to 24 cam-discs L= 625 l1= 500



Gear ratios and maximal number of rotations

For adaption to the number of rotations of your driving shaft following gear ratios could be selected. The number of rotations of your driving shaft should be smaller than the numerical value "x".

i=x/1 x=310, 155, 132, 108, 84, 62, 50, 40, 20, 18, 10, 8, 4, 6, 0,33, 0,25

Example of order number

Type	**LMVS-10/4-108**
Geared Cam Limit Switch	LMVS
Type of switching element	10
Number of switching elements and cam-shafts	4
Value "x"	108

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