

TILOS Power Disconnectors

During last year ENERGETAB Trade Fairs 2005, ETI Polam from Pultusk presented new group of compact Power Disconnectors from TILOS series. This series consists small-gabarit LAS disconectors and isolating LA power disconectors . TILOS power disconectors similarly as over-current compact power ETIBREAK switches , fuse box disconectors (WT-NH) LTL or rail disconectors SL are intended for the energy distribution in switch boxes with rated current of 250 A.

Small gabarit LAS disconectors

Small gabarit LAS disconectors series consists of 8 types disconectors with rated current in range from 16 A to 125 A in two basic sizes (Fig. 1): disconectors equipped with direct knob and safety disconectors equipped with yellow-red knob. This are triple-pole devices with a possibility of the extension to the four-pole version through adding to its side the separate 4-th pole with main contact points. Assembled directly on the montage- plate by means of screws or on the mounting rail TH 35, similarly like other modular equipment. Small gabarit LAS disconectors can be assembled in switch boxes with different depths with knob mounted on door. To this serve special intermediary driving rolls with three lengths with the possibility of their adapting to the any depth of the switch box. Disconectors have following additional accessories :

- auxiliary contact points (1NO + 1NZ) for external position signaling of main contact points.
- stable neutral and earthing pole
- Connectors and 4-th pole covers
- lengthening rolls and knobs

The manner of fastening the accessories are showed on Fig. 2.

Fig. 1 Dimensions values of LAS disconectors



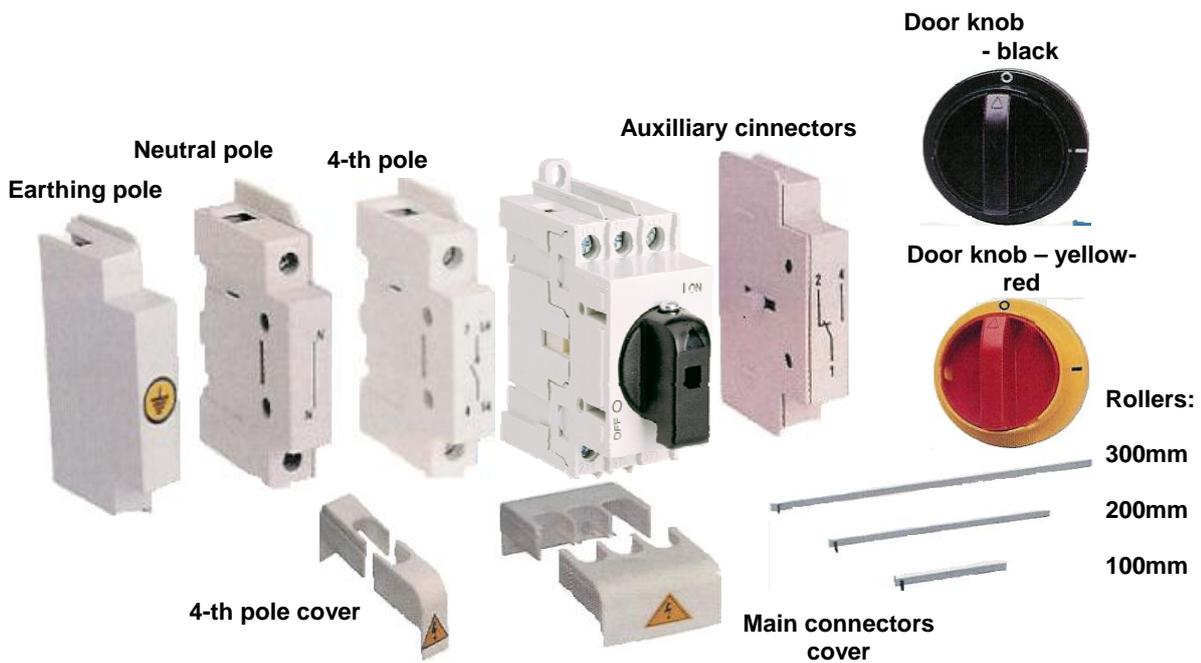


Fig. 2 Assembly method of additional accessories of LAS disconnectors

LAS disconnectors have connectors structure, which after disconnector opening creates double insulating gap, (Fig.3), which comply with requirements. They have high electric and mechanical parameters. (Table 1).

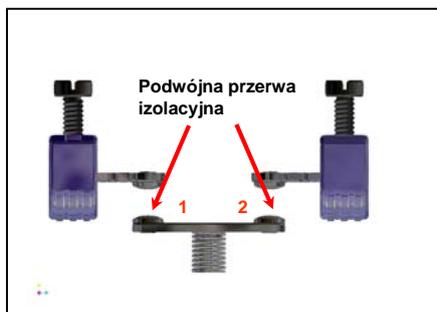
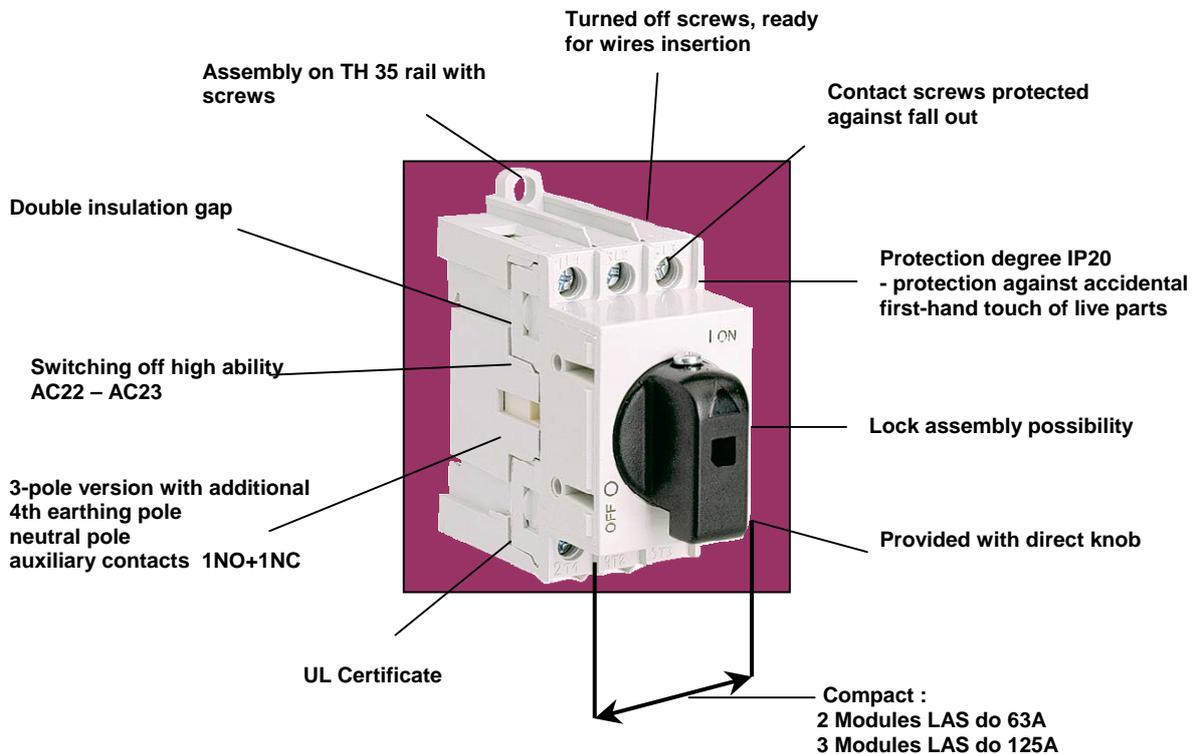


Fig. 3 Main connectors of LAS disconnector

Table 1.

Type		LAS 16	LAS 25	LAS 32	LAS 40	LAS 63	LAS 80	LAS 100	LAS 125
		16A	25A	32A	40A	63A	80A	100A	125A
Insulation rated voltage	(V)	800	800	800	800	800	800	800	800
Switching on rated ability with 415V AC23 voltage	(A)	160	250	320	400	630	800	800	800
Switching off rated ability with 415V AC23 voltage	(A)	128	200	256	320	320	640	640	640
Peak short-circuit current	(kA)	3,8	4,5	5	5,7	5,7	9,9	9,9	9,9
Electric endurance	Cycles	3000	3000	3000	3000	3000	1500	1500	1000
Mechanical endurance	Cycles	50000	50000	50000	50000	50000	30000	30000	30000
Loss Power on 1-pole	(W)	0,1	0,1	0,2	0,3	0,8	1,3	2,0	3,1
Clamps capacity	mm ²	16	16	16	16	16-25	16-50	25-50	35-50

Fig. 4 Functions and features of LAS disconnector



Insulating Power LA disconnectors

Insulating disconnectors TILOS series type LA consists of 5 types of rated currents ranging from 160 A up to 1250 A in five basic dimensions – LA 1-160A, LA 2 – 250A, LA 3 – 400A, LA 4 – 630A, LA 5 – 1250A. (Fig. 5)



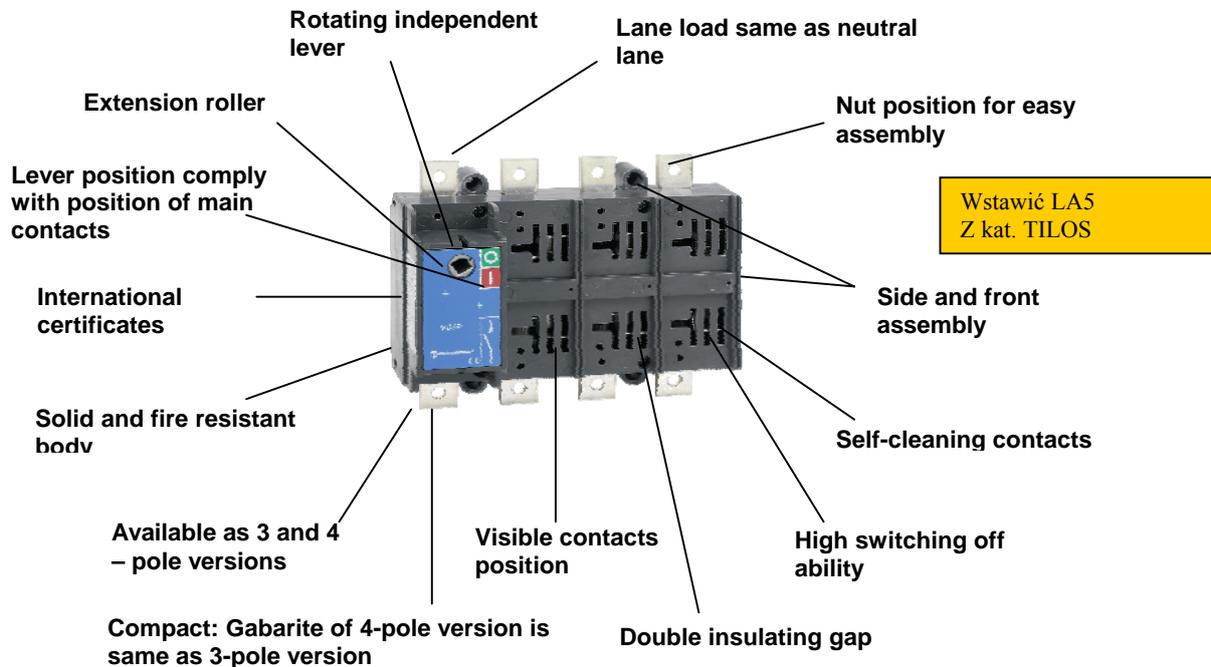
Fig. 5 LA 160A – 1250A Fuse disconnectors

They are 3 and 4-pole disconnectors mounted directly on the assembly board with screws. They are compact and consist of two elements: Selected basic body and handle depending on the actual needs. Technical and electrical parameters are shown in Table 2.

Table 2.

Type		LA 1	LA 2	LA 3	LA 4	LA 5
		160A	250A	400A	630A	1250A
Insulation rated voltage	(V)	1000/1500	1000/1500	1000/1500	1000/1500	1000/1500
Switching on rated ability with 415V AC23 voltage	(A)	1250	2500	4000	6300	12500
Switching off rated ability with 415V AC23 voltage	(A)	1000	2000	3200	5040	10000
Peak short-circuit current	(kA)	5	8	13	26,5	35
Electric endurance	(kA)	65	130	210	330	630
Mechanical endurance	Cycle	2000	2000	1500	1500	1000
Loss Power on 1-pole	Cycle	10000	10000	8000	8000	7000
Clamps capacity	(W)	2,7	3,8	9,4	15,6	12,7
Diameters of connected wires (Cu)	mm ²	70	120	240	2x185	-
Dimension of connected rails (Cu)	mm	16 x 4	20 x 5	2 x 25 x 5	2 x 32 x 6	2 x 50 x 8

Fig. 6 Functions and features of LA disconnector



LA disconnectors have very high durability, reliability, they are dependable and safe during usage, thanks to self-cleaning construction of double connectors and effective extinction chambers. Their functions and advantages are shown on Fig. 6. Quick, independent

connecting mechanism with quick-break contacts, assures that the speed of switching off and on operation is constant and independent from the speed and manner with which the user maneuvers the driving lever.

TILOS series disconnectors have casing made from self-extinguishing isolating material with small hygroscopicity, what assures the high moisture resistance, mechanical endurance and high temperature resistance in the environment defined in compliance with IEC 68-2 norm. Protection degree of not the built-up device is IP20. They can be installed in every assembly-position. The contact point in the neutral track is lockable earlier and opened later, than main contacts points. Besides, the neutral track has an identical current load capacity what main contact. Lines (wires) can be connected to clamps {connectors} with 70 mm² to 240 mm² diameter or rails of max. 2x50x8 mm diameter. (see Table 2). TILOS disconnectors comply with requirements PN-IEC 60947-3, PN-IEC 60364 and VDE 0660-107 norms

Safety

To obtain safety during work and servicing safety LA power disconnectors, casing construction has special slots by through is possible the viewing the contacts points and to without doubts ascertain the switching on and off operation, the connected wire (visible insulating gap). Besides, the lever position of the rotatory drive always univocally points the position of main contacts points. When the circuit is open - the lever is in the „turned off” position - the isolating gap between contact points is approx. 12, 5 mms.

„Turning on” levers and additional accessories

With LA disconnectors can be used two kinds of levers:

- for assembly directly on the disconnector
- for assembly on switch box door by means of
- the roll extension

The standard- lever has the black color and for the installation, in which the disconnector serves as safety disconnector is recommended the lever in yellow - red color (Rys.7). All driving levers installed to disconnector allow, if necessary on sealing their and the block in the "OFF" position by means of 3 padlocks or in the optional extras with the patent- lock. Lever installed on door of the switch box can be opened only in the „OFF” position. Accessible are also intermediary rolls with 200 - 400mm connecting disconnector with the driving lever, thanks to what LA disconnectors can be installed in switch boxes with different depths. The complete set has detailed assembly instruction along with scheme of requisite countersinking of openings. (Fig.9)

Every disconnector can have installed auxiliary contact points with rated current up to 16A with contacts 1NO+1NZ or 2NO+2NZ for the purpose of the remote signaling lever position. Auxiliary (Fig. 8) contact points are driven by a plastic driving roll placed on shaft and their disconnection take place, before contact points are turned off.

Fig. 7 Levers for LA disconnectors

Wstawić VCP 18222-18224 i
VCP 18223 z kat. TILOS

Fig. 8 Auxiliary contact points
Wstawić VCP 18161 z katalogu TILOS

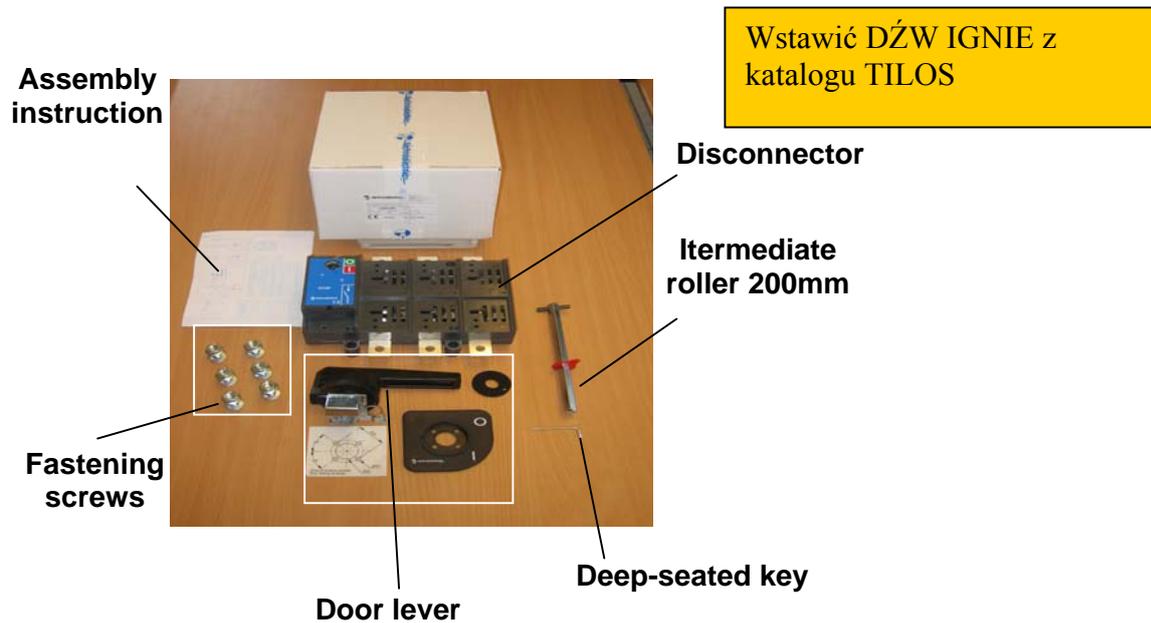


Fig. 9 Auxiliary accessories for LA disconnectors

Obligatory ROHS directive puts on manufacturers of electric devices obligation of the usage to their production heavy metals (lead, cadmium, etc) free materials and components ready for utilization or recycling.

TILOS disconectors comply to these requirements. On Fig.10 are showed the list of materials used for disconectors manufacturing.

Fig. 10

