



ODRA

Medium voltage metal clad switchgear system



TERAZ POLSKA

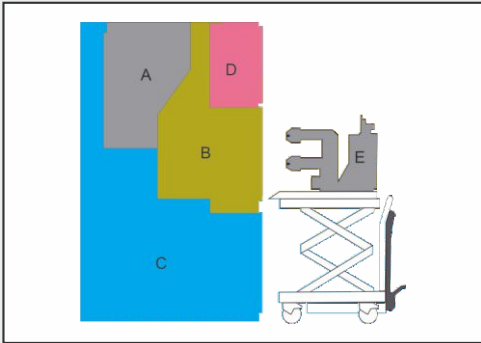




Medium voltage metal clad switchgear system

MV air insulated metal clad switchgear **ODRA** is designed for primary distribution of AC three-phase electric energy with a rated frequency of 50 Hz and rated voltage up to 36 (40.5) kV in power plants, distribution networks of public utilities and industrial power engineering sectors. Switchgear may be executed either in free standing or against-wall setup. The **ODRA** switchgear may be applied for operation with standard PN-EN 62271.

Due to optimal dimensions and parameters, ODRA switchgear can be installed in all places requiring extremely high reliability and safety.



Cross-section of distribution cubicle ODRA:

A – busbar compartment,
B – draw-out unit compartment,
C – connection compartment,
D – auxiliary circuit compartment,
E – circuit breaker draw-out unit.

The **ODRA** switchgear is:

- metal clad, single busbar
- with withdrawable circuit breaker or contactor
- arc-proof
- electrical and mechanical interlocking system prevents failure operations
- earthing switch with making capacity
- air insulation
- metallic partitions and shutters
- equipped with modern switching apparatus

Advanced engineering solutions and simple construction of ODRA switchgear ensure its safe and easy operation and maintenance.

Advantages of **ODRA** switchgear:

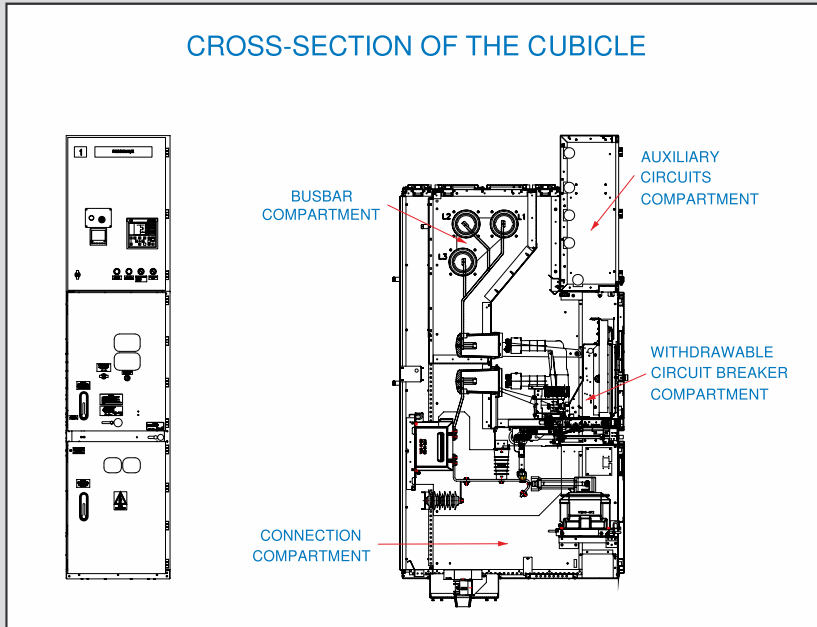
- high safety of operation ensured by:
 - mechanical and electromechanical interlocks, which prevent erroneous switching operations
 - all mechanical operations with the door closed
 - signalling of voltage presence in the primary circuit
 - constructional solutions protecting from internal arc effects
- easy operation and maintenance with wall setup
- use of the modern and reliable apparatus
- high resistance to corrosion
- compact overall dimensions



Main features



A great number of cubicle versions allows flexible designing of the ODRA switchgear according to Customer needs.



- Technical parameters of ODRA switchgear are confirmed with certificate.
- The construction is made of steel plates covered by zinc or aluminum-zinc coating. Side covers of the external panels and doors are covered with polyester powder paint, which ensures excellent protection from corrosion.
- The cubicles are metal clad, i.e. the three functional compartments for busbars, switching apparatus and cable connection are separated from each other by metal partitions. In addition, the low voltage compartment is also metal clad.
- The closed door provides full protection against internal arc, from the top the cubicle construction is enclosed by metal covers (blow-out valves), which in fault conditions open under pressure of gases generated during electric arc burning inside the panel. The cubicle construction is properly reinforced in order to ensure high resistance to internal electric arc effect.

List of basic equipment

No.	Apparatus	Type	Manufacturer
1	Circuit breakers	VD4	ABB
		3AE	Siemens
2	Contactors	V-Contact, ConVac	ABB
3	Earthing switches	E	ABB
4	Current transformers	TPU	ABB
		ACI	ARTECHE
		CTS	KPB Intra
		AB / ATB	ALCE / ESITAS
5	Voltage transformers	TJP, TJC	ABB
		UCI, UCIF	ARTECHE
		VTS	KPB Intra
		VB / VTB	ALCE / ESITAS
6	Earth fault instrument transformers	IO	SPIE Energotest
		IO-1s, IFW, KOKM, KOLMA	ABB
		CTR1	KPB Intra
7	Surge arresters	POLIM	Hitachi Energy
		ASM, ASW	Apator
		3EK	Siemens
		Proxar	Protektel
8	Protection Relays	REF	ABB
		MiCOM	Schneider Electric
		Ex-BEL	Apator
		SIPROTEC	Siemens

* other equipment to be agreed



System of MV metal clad switchgear **ODRA** consists of:

- **ODRA 12**
- **ODRA 17**
- **ODRA 24**
- **ODRA 36 (40,5)**

Technical data:

Rated insulation voltage	kV	12	17,5	24	36 40.5*
Rated lightning impulse withstand voltage (1.2/50µs)	kV	75/85	95/110	125/145	170/195 190/220*
Rated power frequency withstand voltage	kV	28/32 42/48*	38/45	50/60	70/80 95/120*
Rated frequency	Hz	50			
Rated continuous current	A	up to 3150	up to 2500	up to 2000	up to 1250
Rated short time withstand current	kA	up to 31.5/3s	up to 31.5/3s	up to 31.5/3s	up to 25/3s
Rated peak withstand current	kA	up to 80	up to 80	up to 80	up to 63
Withstand for internal arcing fault	kA	31,5/1s	31,5/1s	31,5/1s	25/1s
Degree of protection	IP4X / IP41				
Busbar system	single				
IAC classification (class of resistance to internal arc)	AFLR				
PM/PI classification (class of partitions)	PM				
LSC classification (class of compartment accessibility)	LSC2B				
Weight of a single switchgear cubicle	kg	550 - 1200			900 - 1600
Overall dimensions**	Width	mm	600 - 1200		
	Depth	mm	1250 - 2500		
	Height	mm	2150 - 2560		

Certificate of compliance with the standards PN-EN 62271...

* according to ГОСТ

** without external protectors, covers, doors

ODRA switchgears can be installed among others in:

- main supply terminals
- pad mounted transformers
- switchgear solutions for auxiliary consumption

ODRA switchgears are used in all branches of industry

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