News

OEZ®

Moulded case circuit breakers

2006

DEAR BUSINESS PARTNERS AND FRIENDS

Pavel Schweiner
Director of Export, OEZ s.r.o.

It is a tradition that new things appear with the approach of spring. Our company is aware of this custom, and that's why we introduce new products to the market at this time. On this occasion, it is a new medium-duty circuit breaker, designated the BC 160. It is the smallest of the Modeion series and, as implied by its name, it protects rated currents of up to 160 amperes.

With the complete Modeion series, we want to present ourselves as a supplier of quality components to the power sector, manufacturing industry, infrastructure and residential construction. We will be presenting our complete assortment in spring at the OEZ exhibit at the Ampér fair in Prague, as well as at Elcom in Kiev, at Hannover Messe, at Industria in Budapest and at Elektro in Moscow.

OEZ has newly reorganised its Export Division in several meaningful and practical ways. Having transferred order administration to the Back Office Department, regional export managers have more time now for communicating with business partners. In co-operation with them, they are preparing marketing events in support of sales, and end-user demands have been better defined. More frequent communication has begun to bring another positive effect, as design changes have been made in several products so that they better suit local conditions.

Progress has been made also in our subsidiaries in Russia, Ukraine, Germany and Poland, where we have especially strengthened the commercial sections to cover the industrial regions and thus be closer to goings-on there.

In order to be your reliable and professional partner, we direct all of the company's activities in accordance with our customers' requirements.

In closing, let me thank you for your co-operation to date.

CONTACTS

OEZ s.r.o.
Šedivská 339
561 51 Letohrad
Czech Republic

tel.: +420 465 672 379
fax: +420 465 672 398
e-mail: oeztrade@oez.cz
www.oez.com

CONTENTS

THE MODEION LINE OF MOULDED CASE CIRCUIT BREAKERS

The Modeion-brand product line has been on the market for several years already. The brand encompasses a modern series of moulded case circuit breakers from OEZ s.r.o. This product series is not static and unchanging. Rather, it is constantly being added to and improved. The latest big innovation is seen in the addition to the series of the 160 A - BC160 circuit breaker.

Modeion moulded case circuit breakers are finding their place in residential construction, in infrastructure projects, and in the power sector, but also in demanding and round-the-clock industrial operations. That is ensured not only by the wide range of modular accessories but especially by the interchangeable electronic overcurrent releases. That means that in a single circuit breaker type size, and considering the regulation range of 60%, the full range of rated current adjustment is up to 87%.

In order to simplify the customer's choice of releases, we have divided these into four categories, which we have named by their characteristics and that predetermine their uses.

Characteristic L (L001) is intended for protecting circuits of lines, because a circuit breaker with this characteristic has a short-circuit release setting at four times the rated current. This design is notable for its simplicity of use, as it has no adjustment elements. By using so-called retrofit sets, and from both the design viewpoint and physically, these circuit breakers also very easily replace older BA511 circuit breakers with the lines characteristic.

Moulded case circuit breakers

A circuit breaker equipped with a release with characteristic designation D (DTV3) is intended especially for industrial applications, because it permits adjustment not only of the rated current but also of the short-circuit release. It is exactly this that makes it possible with this type of characteristic to protect both wiring and such devices with high starting currents as groups of lights or motor feeders.

For direct protection of motors, there is the design with characteristic M (MTV8). Electronic releases with characteristic MTV8 can, however, be used without problems also for protecting both transformers and lines. To achieve still higher universality, there was brought to market this year an electronic release design with characteristic MTV9. This release was developed from the MTV8 release and is furthermore equipped with a selective release whose time delay can be set at up to 300 ms.

That brings us to the final category of release on offer, and at the same time to a significant change in the range of accessories for Modeion circuit breakers. That is, to the termination of selling the releases with designations M001 and A001 for the BL1600 circuit breakers. The focal point of using these releases was in the first instance for operations where there had been demands for achieving selectivity, but also for instances when the designer did not have a closely specified load for the project. For this reason, at the end of 2005 we introduced for sale a new type of release for the BL1000 and BL1600 circuit breakers with designation U001. The U001 releases are fully-fledged replacements for the A001 and M001 releases. Their advantage is in the universality of their characteristics and the possibility for setting the tripping characteristic to the value I^5t = constant. This setting is used in cases where fuse-links are situated before or after the circuit breaker. The aforementioned adjustment provides for a higher degree of selectivity.

As was already mentioned, Modeion circuit breakers have a wide range of modular accessories. In particular, there is a comprehensive set of solutions for connecting power conductors. Connection sets permit connecting all typically used diameters and types of Cu and Al busbars and cables.

Circuit breakers can be controlled using a rotating hand drive that also provides for controlling either through the front panel or through the switchgear door.

One can turn Modeion on and off by means of motor drives. As a standard, control voltages are 230 V and 110 V for AC circuits, while in DC circuits control voltages of 220 V and 110 V are available. Drives for BD250 and BH630 circuit breakers are available in 24 V and 48 V versions for both AC and DC currents. Further possibilities for remote switching of Modeion circuit breakers include the use of shunt trips or undervoltage releases.

For uses in automatic control systems, it is necessary also to know the states of the circuit breakers. Switches serve for this purpose. By using these, one can determine whether a circuit breaker is switched off or switched on, and, if need be, these enable one to differentiate whether switching off was by an overcurrent release or by an auxiliary shunt trip or undervoltage release.

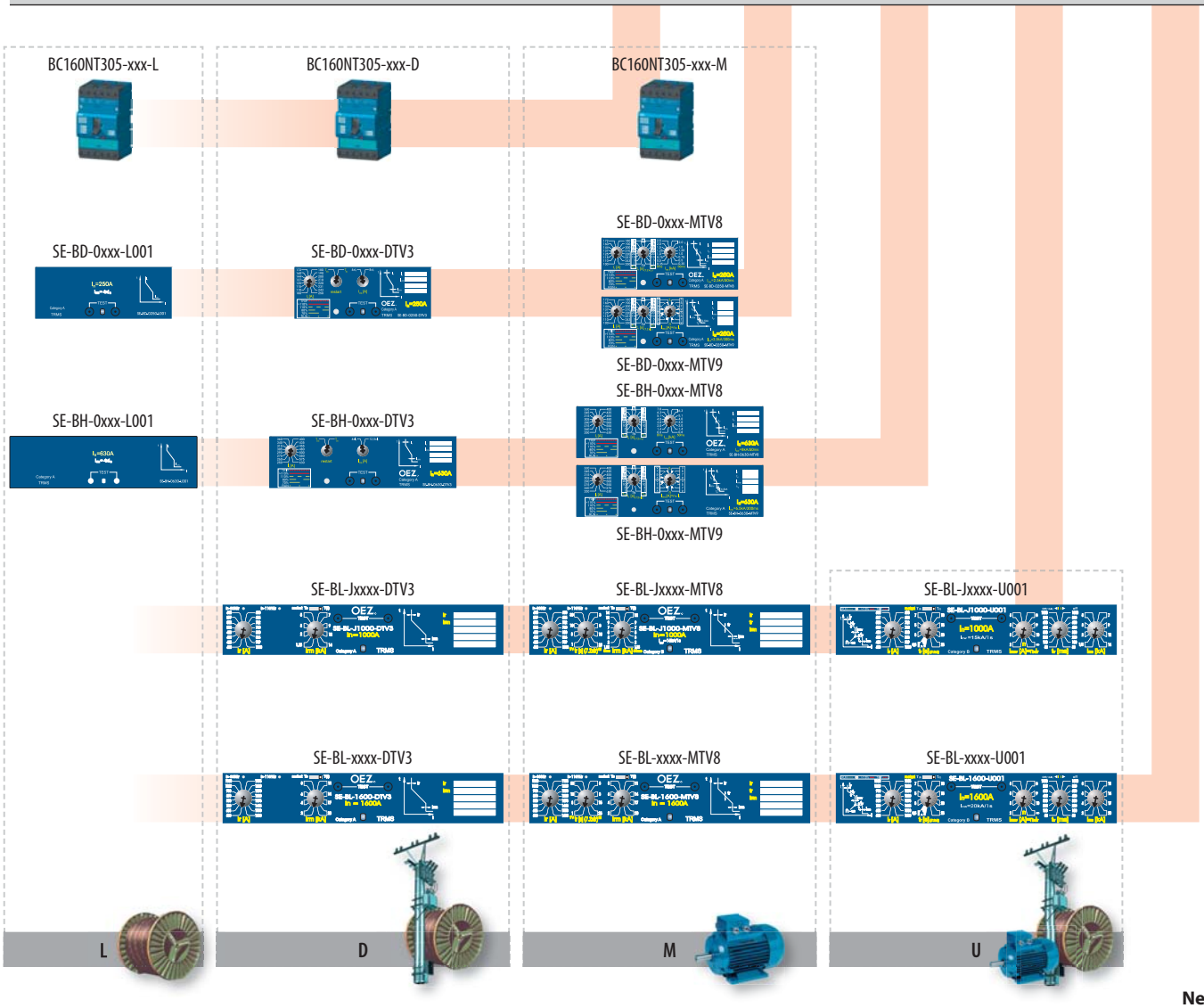
In electrical power plants and heavy industrial operations, withdrawable and plug-in designs are used, and the Modeion series includes such versions. An integral part of these designs is the option for signalling of the circuit breaker position. Of course, there is locking in the disengaged state in order to secure the circuit in a visually disconnected state.

For five-conductor TN-C-S and TN-S systems, the BD250 and BH630 circuit breakers are offered in four-pole models. In sizes up to 160 A, the offering will be broadened from the beginning of 2007 also to include four-pole BC160 circuit breakers. "Four-polers" have been drawn up in models with both a protected and unprotected fourth pole.

In just a brief article, one cannot cover all the variants and options offered by this series of moulded case circuit breakers. For more detailed information, please consult our Moulded Case Circuit Breakers catalogue.

Selecting overcurrent releases according to device protected

Type			BC160N	BD250N, BD250S	BH630N, BH630S	BL1000S	BL1600S
Rated current	I_u		**160 A**	**250 A**	**630 A**	**1000 A**	**1600 A**
Rated operating voltage	U_e		max. 690 V a.c.	max. 690 V a.c.	max. 690 V a.c.	max. 690 V a.c.	max. 690 V a.c.
Rated frequency	f_n		50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Utilization category			A	A	A	A, B	A, B
Rated short-circuit ultimate breaking capacity	I_{cu} / U_e	NORMAL SUPERIOR	25 kA / 415 V a.c. –	36 kA / 415 V a.c. 65 kA / 415 V a.c.	36 kA / 415 V a.c. 65 kA / 415 V a.c.	– 65 kA / 415 V a.c.	– 65 kA / 415 V a.c.
Rated short-circuit making capacity (peak value)	I_{cm} / U_e		52 kA / 415 V a.c.	140 kA / 415 V a.c. (75 kA / 415 V a.c.)	140 kA / 415 V a.c. (75 kA / 415 V a.c.)	140 kA / 415 V a.c.	140 kA / 415 V a.c.
Size: W x H x D			75 x 135 x 70 mm	105 x 225 x 105 mm	140 x 275 x 105 mm	210 x 350 x 135 mm	210 x 350 x 135 mm
Number of poles			3	3, 4	3, 4	3	3
Overcurrent releases			thermo-magnetic	electronic	electronic	electronic	electronic
Max. cross section per 1 pole			2 x 120 mm²	2 x 240 mm²	2 x 240 mm²	4 x 300 mm²	4 x 300 mm²



Accessories of moulded case circuit breakers

HAND DRIVE

The hand drive permits controlling the circuit breaker/switchdisconnector by turning the lever, e.g. to switch machines on and off. The drive's modular concept allows for simple mounting on the circuit breaker (even as an add-on) after removing the cavity cover. An affixed drive may be sealed.

■ Controlling from front of device

Circuit breaker/switch-disconnector includes a hand drive unit and lever. Two circuit breakers with hand drives can be provided also with reciprocal mechanical interlocking or mechanical parallel switching.

■ Controlling on switchgear door

Operating lever on the switchgear door and circuit breaker/switch-disconnector are connected by a shaft. The device includes a hand drive unit, extension shaft, bearing and lever. The bearing located on the switchgear door is provided in various degrees of protection.

	BC160N	BD250N, BD250S	BH630N, BH630S	BL1000S	BL1600S
Intended for	●	●	●	●	●
Bearing protection	IP 40 IP 66	IP 40 IP 66	IP 40 IP 66	IP 44 IP 66	IP 44 IP 66

● available, – unavailable, + in preparation

REMOTE CONTROLLING

■ Motor drive

It is possible to switch the circuit breaker on and off remotely by means of a motor drive. The modular conception of the drives permits simple mounting on the circuit breaker (even as an add-on) after removing the circuit breaker cavity cover. The mounted drive can be sealed.

	BC160N	BD250N, BD250S	BH630N, BH630S	BL1000S	BL1600S
Intended for	+	●	●	●	●
Operating voltage AC DC	+	24, 48, 110, 230 V 24, 48, 110, 220 V	24, 48, 110, 230 V 24, 48, 110, 220 V	110, 230 V 110, 220 V	110, 230 V 110, 220 V

● available, – unavailable, + in preparation

■ Shunt trips and undervoltage releases

A shunt trip or undervoltage release serves for remote switching off of the circuit breaker/switch-disconnector. Shunt trip will trip the circuit breaker/switch-disconnector upon reaching the rated working voltage. Alternatively, undervoltage release trips circuit breaker at a loss of voltage. Breaking time is 20 ms.

	BC160N	BD250N, BD250S	BH630N, BH630S	BL1000S	BL1600S
Intended for	●	●	●	●	●
Operating voltage AC DC			24, 48, 110, 230, 400, 500 V 24, 48, 110, 220 V		

● available, – unavailable, + in preparation

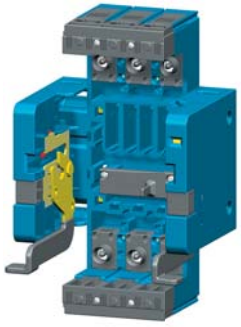
SIGNALLING STATE OF CIRCUIT BREAKER/SWITCH-DISCONNECTOR

Switches are used for signalling the state of the circuit breaker/switch-disconnector. These are produced in various types - make, break and change-over. Switches signal state of the main contacts, switching off by the overcurrent release and switching off by the auxiliary releases.

	BC160N	BD250N, BD250S	BH630N, BH630S	BL1000S	BL1600S
Intended for	●	●	●	●	●
Operating voltage Operating voltage (Au design)			5 ÷ 60 V a.c./d.c. 60 ÷ 500 V a.c./d.c.		

● available, – unavailable, + in preparation

VISIBLE DISCONNECTION OF CIRCUIT



Withdrawable and plug-in circuit breaker/switch-disconnector design is intended for demanding industrial operations, where quick exchange of the circuit breaker and both visible and conductive disconnection of the circuit are necessary. Withdrawable circuit breaker/switch-disconnector has three positions - engaged (operating position), disengaged (checking position), and removed.

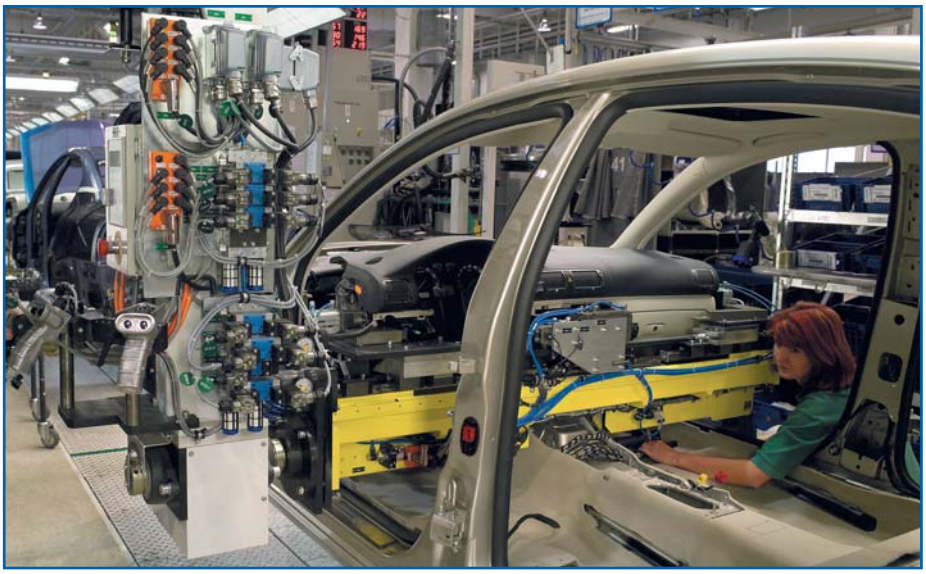
	BC160N	BD250N, BD250S	BH630N, BH630S	BL1000S	BL1600S
Withdrawable design	–	●	●	●	●
Plug-in design	–	●	●	–	–

● available, – unavailable, + in preparation

References

MODEION PROTECTS ŠKODA AUTO FACTORY

During 2006, Škoda Auto in Mladá Boleslav is celebrating 15 years since becoming part of the VW group. The path to its present prosperity has led from producing bicycles through motorcycles to automobiles, the latter of which began as early as in 1905. Since joining Volkswagen group in 1991 and through the following transformation, Škoda Auto has developed into an autonomous, dynamic and prosperous company with its own production programme.



The company manufactures cars today in three model lines: Superb, Octavia and Fabia. This year, the company will introduce its fourth line, the Roomster. A total of 80% of its output is exported to 90 countries of the world. Representing some 10% of all Czech exports, Škoda Auto is an integral part of the Czech economy. In the Czech Republic, Škoda automobiles represent approximately one-half of all new cars sold. The Czech automaker is also the market leader in Slovakia, Poland, Bulgaria and Bosnia and Herzegovina.

Škoda Auto is an official partner of the legendary Tour de France bicycle race.

We speak with Ing. Jan Janek, from the Structure and Infrastructure Planning Division, about Škoda Auto's needs for protecting power distributions, machinery and low-voltage devices.

What sorts of devices and circuits do you need to protect in your operations?

As the leading car producer in the Central Europe, we have many non-stop operations fed from multiple sources. This concerns the supply of single-purpose machines designed for producing auto components, for example the line for producing MQ 200 gearboxes, as well as the supply of technological units designed for welding, including robotized workplaces.

Which circuits and devices do you protect using circuit breakers?

There are many of them… I'll start with the power centre, that is with the main protection for transformers and standby power units. Moreover, we use circuit breakers to protect the backbone busbar distributions for technological workplaces, the supply to ventilation and air-conditioning systems, and, last but not least, the supply for annealing technologies and welding lines. In other distributions: We protect the production halls, administration building and other buildings with a combination of circuit breakers with fuses in fuse switch-connectors in order to optimise costs. Here, too, we use OEZ fuse devices.

Do you commonly use Modeion moulded case circuit breakers?

Yes we do. For reconstructions or extending the feeding capacities we utilize OEZ's full offering of protection elements. The protective devices in the Modeion series constitute the standard equipment for our feeder transformer stations.

What is your experience with Modeion moulded case circuit breakers?

We appreciate their reliability, the assistance of OEZ's specialised service in putting the devices into operation, and the technical support - particularly for our new investments. We especially appreciate the enduring care for the correct functionality of our devices. Simplified set-up, extendibility of connections as well as improvement in characteristics for the users of the Modeion circuit breakers give the devices good perspective. Now we have been presented the new BC160 type Modeion series circuit breaker. I am convinced that it will find applications in some of the projects in preparation, including reconstructions, extensions and in modernising switchgear.

www.oez.com

OEZ®

News 2006

Modeion

INTRODUCING THE COMPLETE MODEION LINE, FOR A WIN EVERY TIME

- **Protecting of electrical equipment from 12 A to 1600 A**
- **Interchangeable overcurrent releases**
- **Wide choice of accessories**
- **Comprehensive solutions for connecting circuit breakers**
- **Software support**