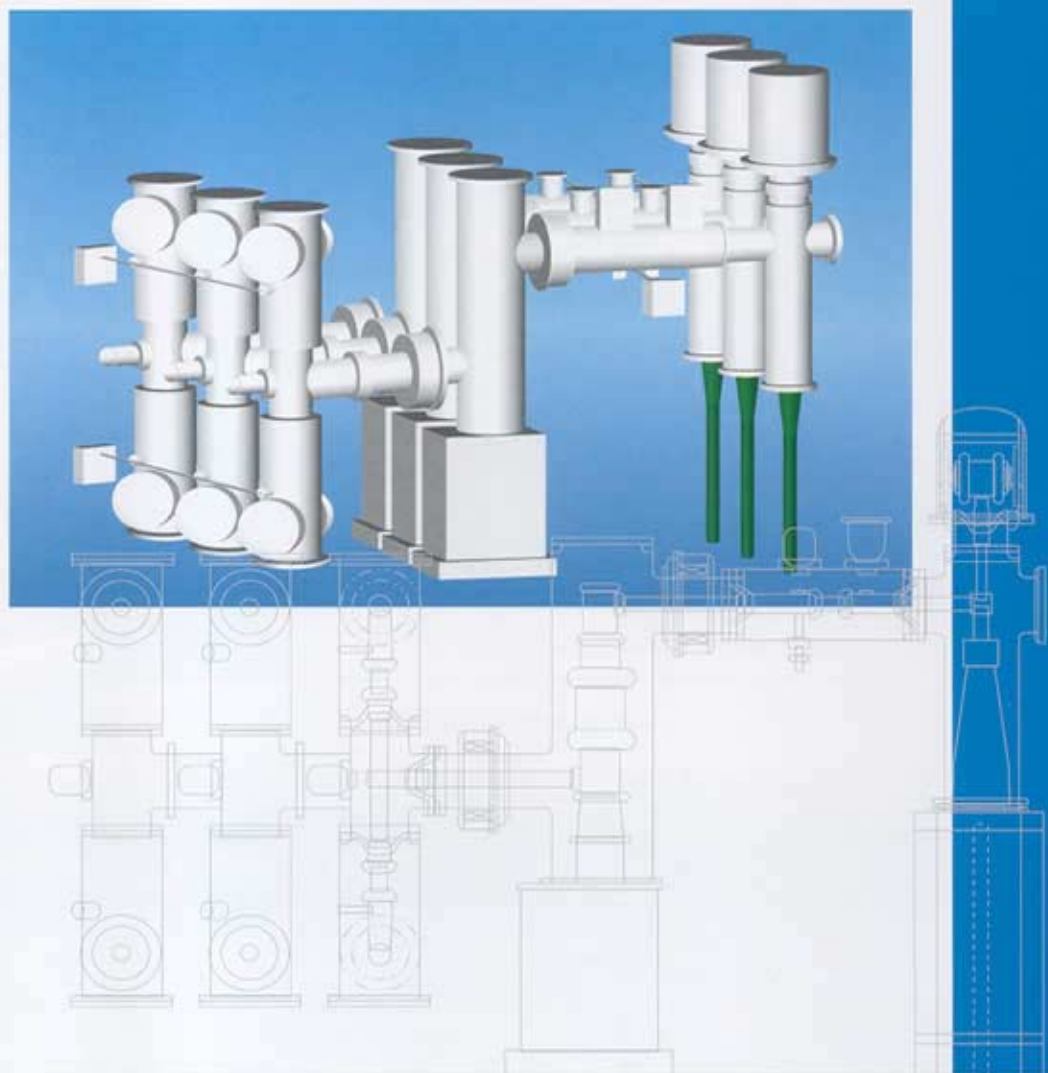
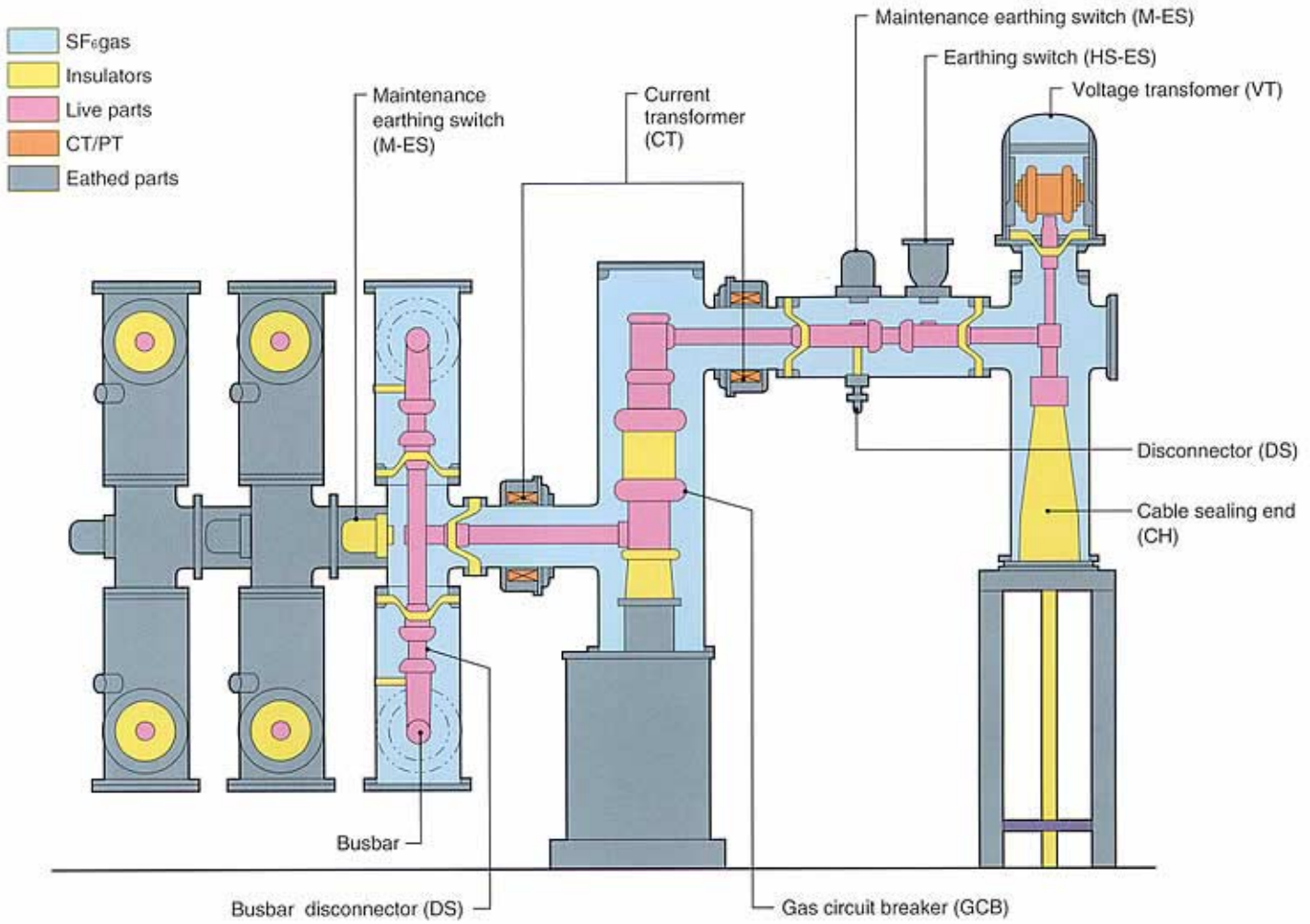


362~420kV Gas Insulated Switchgear



	Ratings
Type	G1D
Rated voltage	362/420kV
Rated lightning impulse withstand voltage	1175/1425kV
Rated switching impulse withstand voltage	950/1050kV
Rated power frequency withstand voltage	460/520kV
Rated frequency	50/60Hz
Rated current	2000/3150/4000 A
Rated short time withstand current	40 to 63kA-3sec.
Rated gas pressure (abs.)	0.7 MPa(GCB)/0.6 MPa(GIS)
Applied standards	IEC

Typical Construction of 362~420kV GIS



Certificate of KEMA

KEMA 5-98

CERTIFICATE OF SHORT-CIRCUIT PERFORMANCE

APPARATUS: One pole of a three-pole SF₆ circuit-breaker having one interrupter per pole.
DESIGNATION: 362kV-420kV
Rated voltage: 362 kV **Rated frequency:** 50 Hz
Rated current: 4000 A **Rated SF₆ pressure at 20 °C:** 0.5 MPa

MANUFACTURER: Toshiba Corporation, Hamamatsu-works, Japan

DATE OF TESTS: 10th November 1997 to 10th February 1998

The apparatus concerned is conforming with the electrical, thermal and photographic treatment of the Certificate. The tests subjected to the series of proving tests in accordance with IEC 62-540-1 (Series 5.2.171), 5.110 to 4.118 (Series 5.2), 5.120 (Series 5.2), and 5.121 (Series 5.2) and the SF₆ gases are appropriate.

As a result of the tests, the manufacturer is authorized to issue a Certificate of compliance with the above-mentioned IEC standards relating to the SF₆ gas treatment system.

THE RESULTS ARE SHOWN IN THE RECORD OF PROVING TESTS AND THE DISCONNECTORS ATTACHED HERETO, THE VALUES OBTAINED AND THE SIMILAR PERFORMANCE ARE CONSIDERED TO CONFORM WITH THE ABOVE STANDARDS AND TO JUSTIFY THE RATINGS ASSIGNED BY THE MANUFACTURER AS LISTED ON SHEET 1.

This Certificate and Record of Tests apply only to the specific piece of apparatus named. The responsibility for conformity of any apparatus bearing the same designation as the one named rests with the manufacturer.

THE DOCUMENTS FORMING PART OF THIS CERTIFICATE ARE:

Drawn	31
Circuit diagrams	3
Testpiece records	2
Calculations	106
Drawings	6
Photographs	18
Information sheet	8702

KEMA (Koninklijk Nederlandsche Electrotechnische Laboratorium) is a representative of the state organization for the testing of electrical apparatus for the purpose of certification of the safety of electrical apparatus. It is a member of the International Electrotechnical Commission (IEC).

KEMA Nederland B.V.
 U.S. Newark
 Amsterdam 23th April 1998

KEMA

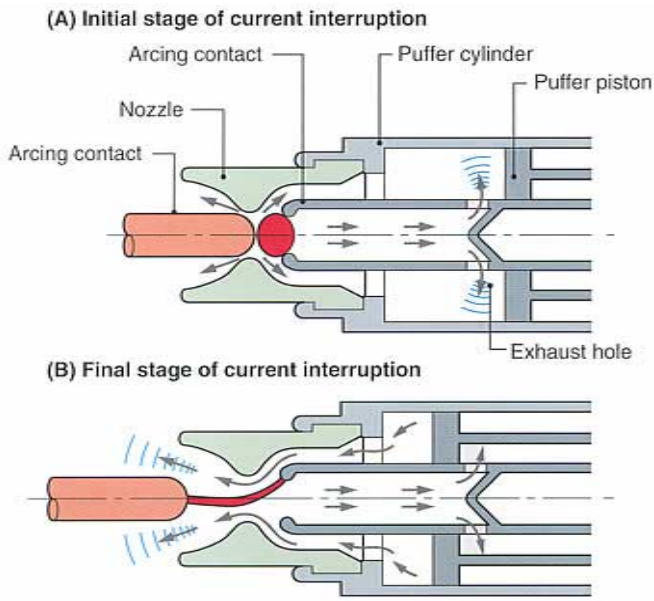
RATINGS ASSIGNED BY THE MANUFACTURER AND PROVED BY TESTS

Parameter	Value	IEC 62-540-1
Short-circuit breaking current	100 kA at 362 kV	100 kA at 420 kV
Short-circuit making current	80 kA at 362 kV	80 kA at 420 kV
IEC withstand	20 kA	20 kA
Rated short-circuit current	40 kA	40 kA
Rated short-circuit power	1.6 GVA	1.6 GVA
Breaking capacity	80 kA at 362 kV (1.6 GVA)	80 kA at 420 kV (1.6 GVA)
Rated short-circuit current	40 kA	40 kA
Rated short-circuit power	1.6 GVA	1.6 GVA

Based on a rated breaking current of 40 kA at 362 kV (1.6 GVA)

Gas Circuit Breaker

Principle of advanced hybrid puffer



Design philosophy for interrupting chamber

Effective energy transfer to pressure rise

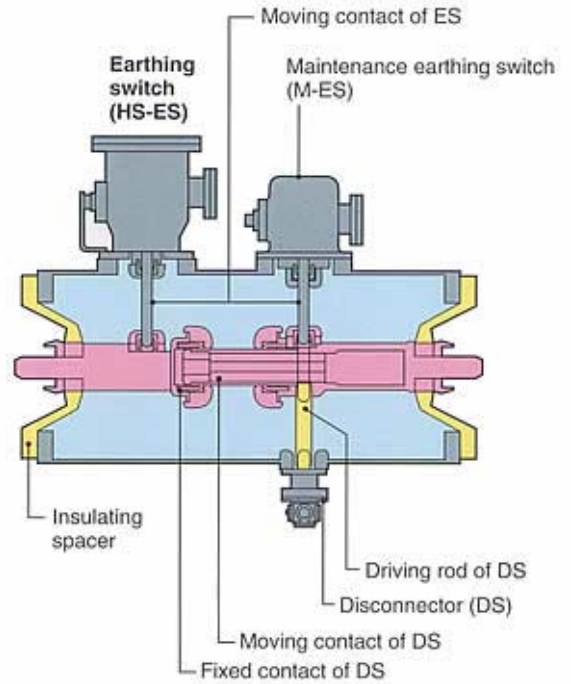
Optimum puffer cylinder dimensions

Reduce the driving energy

Disconnecter and Earthing Switch

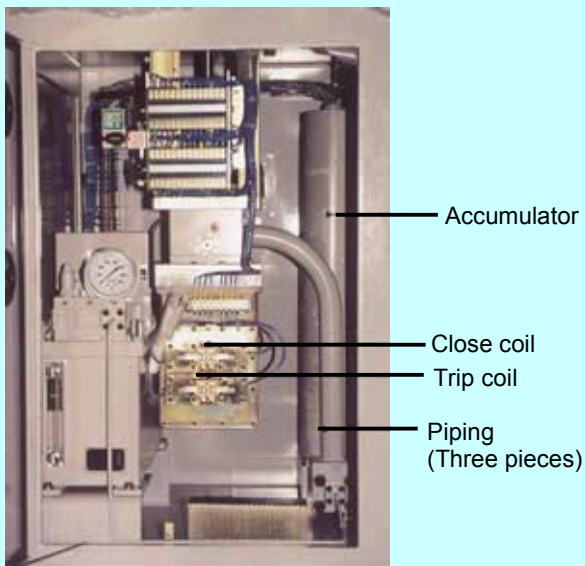
Integrated construction (DS, HS-ES, M-ES in one enclosure).....Minimization of size

All contacts (DS, HS-ES, M-ES) are straight moving type with proper wipe
.....Simplification of arrangement, long life

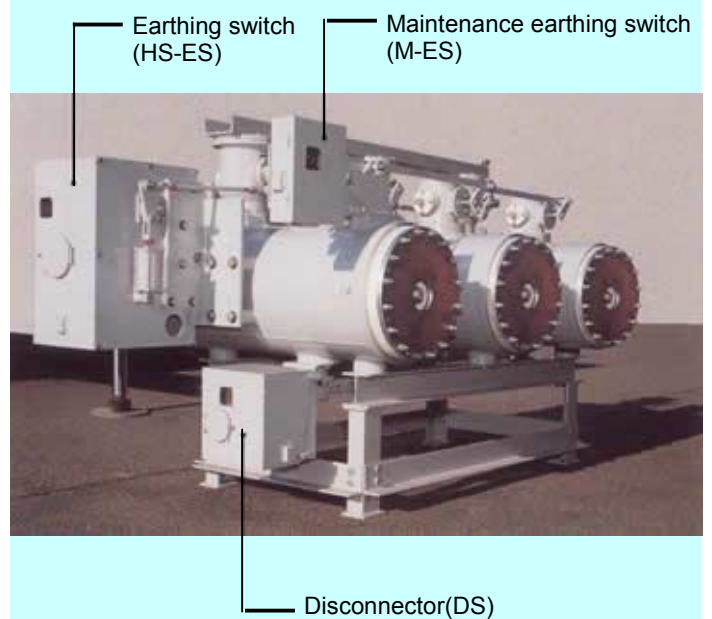


Hydraulic Operating Mechanism of GCB

Reduction of sealing points and parts
Small quantity of oil
High reliability



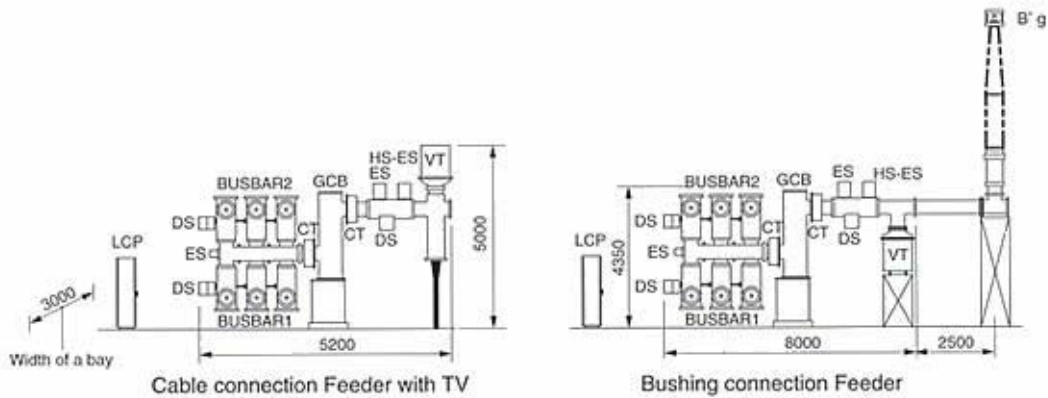
Outline of Disconnecter and Earthing Switch



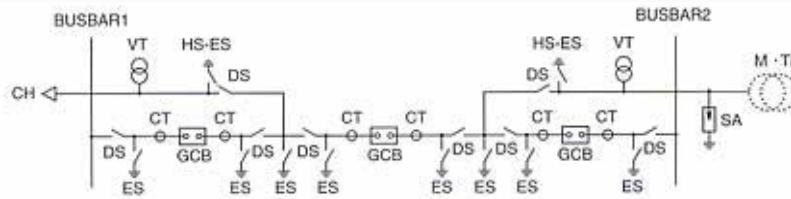
Typical Arrangement



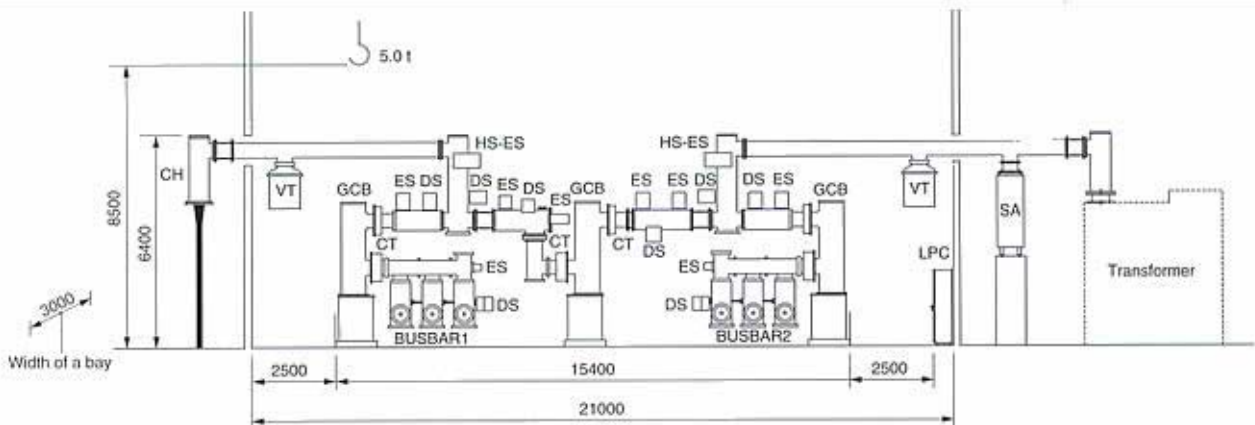
Single Line Diagram



Double Busbar System



Single Line Diagram



One and a half Circuit Breaker System

TOSHIBA

TOSHIBA CORPORATION

POWER SYSTEM & SERVICES COMPANY

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Tel. 03-3457-3770 Fax. 03-5444-9184

The data given in this catalog are subject to change without notice.

5406-1 '01-03T1