KKS TAGING PROCEDURE:

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KKS TAGING PROCEDURE:

1.0 KKS-INTRODUCTION (IDENTIFICATION SYSTEM FOR POWER PLANTS)

1.1 Purpose

The power plant identification system is applied to clearly identify plants, systems, parts and components to their purpose, type and location. The contents are based on the “Identification Systems for Power Plant (KKS)” published by VGB- Technical Association of Large Power Plant Operators.

1.2 Requirements to be met by the Identification System KKS

In order to perform the set tasks the identification system must be capable of satisfying the following requirements:

- ☐ Determination of all installations and sub-systems,
- ☐ An adequate number of reserve codes must be available for future developments in power plant engineering,
- ☐ The classification of installations and sub-systems must be generally applicable to all types of power plant; all individual circuits and arrangements must, however, be clearly identifiable,
- ☐ Clear identification of all sub-systems,
- ☐ An identification used in a power plant must be non-recurring,
- ☐ Subdivision with graded details and a fixed meaning for the data characters,
- ☐ Variable identification length depending upon the detail requirements of the various areas of application,
- ☐ Independent identification of various systems must be possible,
- ☐ Ease of recognition ensured by clarity and an acceptable length for the identification,

KKS TAGING PROCEDURE:

- ☐ Plausibility check facility, especially for data processing,
- ☐ Existing standards, guidelines and recommendations must be taken into account.

1.3 Structure and Application of the Power Plant Identification System KKS

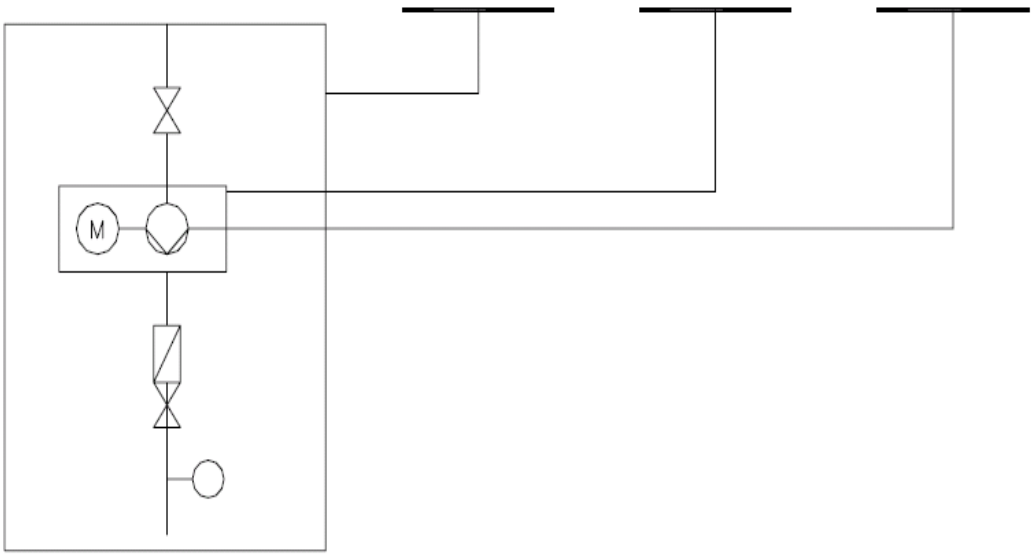
The KKS consists of three types of identification:

- ☐ The process-related identification identifies installations and equipment according to their assigned task in the power plant process,
- ☐ The point of installation identification identifies the points of installation within an installation unit (e.g. cubicles, consoles, panels),
- ☐ The location identification identifies the rooms and floors, or other installation sites, for installations and equipment in building structures.

A uniform identification structure, with a maximum of four breakdown levels, was created for all three types; the units referred to becoming smaller from left to right.

Fig. 1 shows the breakdown levels, referring to a process-related identification as an example.

Serial no. of breakdown level	0	1	2	3
Title of breakdown level	Total plant	Function	Equipment unit	component
Example	Unit	System	Pump unit	Pump



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[Fig. 1. Breakdown levels, referring to Process-related identification]

1.3.1 Process-Related identification

In this type of identification the entire system is subdivided according to the function or process, since, whether for mechanical, electrical, control of civil engineering, the equipment units and components must be identifiable in relation to the process.

The process-related identification is for many applications the most important identification, since it permits, for example, locations of electrical and control equipment, rooms, signals, and the identification in circuit diagrams related to particular functions.

In the electrical and instrumentation control engineering sectors, the equipment for auxiliary services, power supply, open-loop-control, instrumentation, etc,. is treated as a process engineering function. The same applies to structures in civil engineering work.

The process-related identification corresponds to the identification block “Plant” in DIN 40719, part 2. This block has the prefix sign “=”. According to the standard, the prefix sign can be omitted provided that the identification remains unambiguous.

1.3.2 Point of installation identification

As with the Process-related Identification, the KKS is also used to identify locations, principally of electrical and instrumentation and control equipment, but also of mechanical equipment. Locations, for example, coordinates, racks and positions in cubicles etc. are identified in the breakdown level EQUIPMENT UNIT.

The identification letters now used for the Point of installation identification in the breakdown

level FUNCTION are the same as those for the process-related identification. This improves recognition of the identification in the overall system.

In order to prevent possible confusion between Process-related identification and Point of installation identification the prefix sign “+” must be added to the point of installation Code (according to DIN 40719, part 2). Resp. the breakdown symbol “full stop” between breakdown Level 1 and 2 must be added. This prefix sign is omitted when there is absolutely no ambiguity in layout documents.

1.3.3 Location identification

In order to clearly identify the position of plant, subsystems and equipment in the power plant, the building structure and floor is entered at the breakdown level FUNCTION, and the rooms on the various floors of the building structure at the breakdown level EQUIPMENT UNIT. The breakdown level COMPONENT is omitted in such cases. Fire protection sections are identified according to the room identification.

1.3.4 Breakdown Level Structure

Serial no. of Breakdown level	0	1	2	3
Number of breakdown level	Overall plant	Function	Equipment Unit	Component
Designation of Data character	G	$F_0\,F_1\,F_2\,F_3\,F_N$	$A_1\,A_2\,A_N\,A_3$	$B_1\,B_2\,B_N$
Type of data Character	(A) or (N)	(N) A A AN N	A A N N N A	A A N N

KKS TAGING PROCEDURE:

A = Alphabetical symbols (letters, special symbols)

N = Numerical symbols (digits)

( ) = The data characters may be omitted

1.3.5 Title and contents of the breakdown levels

Breakdown levels	0 Total Plant	1 Function	2 Equipment unit	3 Component

Process-related code

	Total Plant	System code	Equipment unit code	Component code
Mechanical	Unit	System	Pump unit	(Pump)
Civil	Unit Unit	Structure, floor Structure, floor	Rolling door Fan unit	(Motor) (Fan)
C & I	Unit Unit	System System	Measuring circuit Open-loop control	
Electrical	Unit Unit	Switchgear Transformer	 Fan unit	

Point of Installation

	Unit	Installation unit code	Installation space code	
Electrical and C&I	Unit Unit Unit	Switchgear Electrical equipment cabinet Control console	Tier/Space Tier/Space Coordinate	

Location Code

KKS TAGING PROCEDURE:

	Total Plant	Structure code	Room code	
Civil	Unit	Structure, floor	Room / coordinates	
	Unit	Outdoor area	Coordinates	

1.4 Breakdown, structure and contents of the identification

The KKS is divided into different BREAKDOWN LEVELS and codes from right to left in diminishing order of the units of a complete power plant.

The breakdown levels have the following structures:

0	1			2			3	
Overall plant	Function			Equipment unit			Component	
G	F_0	F_1 F_2 F_3	F_N	A_1 A_2	A_N	A_3	B_1 B_2	B_N
A or N	(N)	A A A	N N	A A	N N N	(A)	A A	N N

Function code (Chapter 3.0)

Equipment unit code (Chapter 4.0)

Component code (Chapter 5.0)

Note 1) & 2)

Note: 1) Rules on A_N numbering for piping and in-pipe-components

Serial NO. A_N	Valves (AA A_N)	Pipes (BR A_N)
Oxx	Valves in main pipes	Main pipes
101-130	Safety valves	Suction and pressure relief lines on safety valves
2xx	Not used	Not used
3xx	Isolating equipment for measuring	Pressure lines for measurement
4xx	Valves in drains and flushing pipes	Drain, flushing pipes, pressure

KKS TAGING PROCEDURE:

		suppression pipes
5xx	Valves for venting	Vents
6xx	Valves for sampling and proportioning	Sampling and proportioning pipes
701-799	Valves for internal controls (solenoid valve)	Internal instrument lines
8xx	Not used	Not used
9xx	Not used	Not used

"xx" : categories

00-40	Manual valves/dampers
41-49	Motor operated valves/dampers (on/off, inching type)
51-59	Motor operated valves/dampers (modulating type)
61-69	Pneumatic operated valves/dampers (on/off type)
71-79	Pneumatic operated valves/dampers and regulators (modulating type)
81-89	Hydraulic operated valves/dampers (on/off and inching type)
91-99	Hydraulic operated valves/dampers (modulating type)

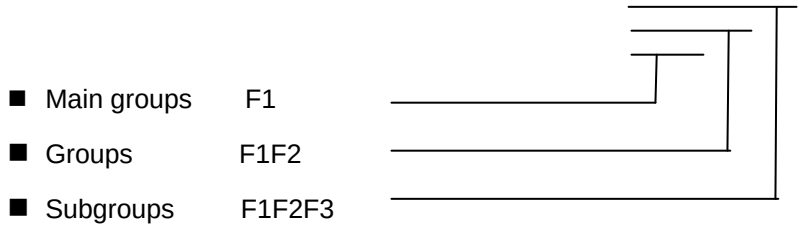
Note: 2) Rules on A_N numbering for field instruments

001-009	Sensing element (analyzer, vibration, etc)
101-199	Transmitter (flow, level, pressure, temperature) including thermocouple and RTD
201-299	Switch (flow, level, pressure, temperature)
401-499	Test well, test point
501-599	Local gauge (flow, level, pressure, temperature) including flow nozzle and orifice

KKS TAGING PROCEDURE:

1.5 Function Key (function identification)

Serial No. of breakdown level	1		
Name of the breakdown level	Function		
Identification data character	F_0	F_1 F_2 F_3	F_N
Type of character	N	A A A	N N



Function Key, Main Groups F1

Code	Identification
A	▪ Grid and distribution systems
B	▪ Power transmission and auxiliary power supply
C	▪ Instrumentation and control equipment (Identification on a priority basis according to main, instrumentation and control function also acceptable in composite structure hardware packaging systems.)
E	▪ Conventional fuel supply and residues disposal
G	▪ Water supply and disposal
H	▪ Conventional heat generation
L	▪ Steam, water, gas cycles
M	▪ Main machine sets
P	▪ Cooling water systems

KKS TAGING PROCEDURE:

Q	▪ Auxiliary systems
S	▪ Ancillary systems
U	▪ Structures
W	▪ Renewable energy plants
X	▪ Heavy machinery (not main machine sets)
Z	▪ Workshop and office equipment

For complete function code list including system limits of function groups F_1F_2 and function sub-groups $F_1F_2F_3$ see function code (Chapter 3.0).

1.6 Equipment Unit Key

Equipment unit identification

Serial No. breakdown level

Name of the breakdown level

Identification of data character

Type of data character

2		
Equipment unit		
A_1 A_2	A_N	A_3
A A	N N N	A

- Main groups A_1
- Subgroups A_1A_2

Code	Identification
A	Mechanical equipment
B	Mechanical equipment
C	Direct measuring circuits

D	Closed-loop control circuits
E	Analog and binary signal conditioning
F	Indirect measuring circuits
G	Electrical equipment
H	Sub-assemblies of main and heavy machinery

For complete equipment units of the subgroups A1A2, see equipment unit code (Chapter 4.0).

1.7 Component Identification

Serial No. breakdown level	3	
Name of the breakdown level	Component code	
Identification of data character	B_1 B_2	B_N
Type of data character	A A	N N N

- Main groups B_1
- Subgroups B_1B_2

Component code main groups B1:

Code	Identification
-	Electrical components
K	Mechanical components
M	Mechanical components

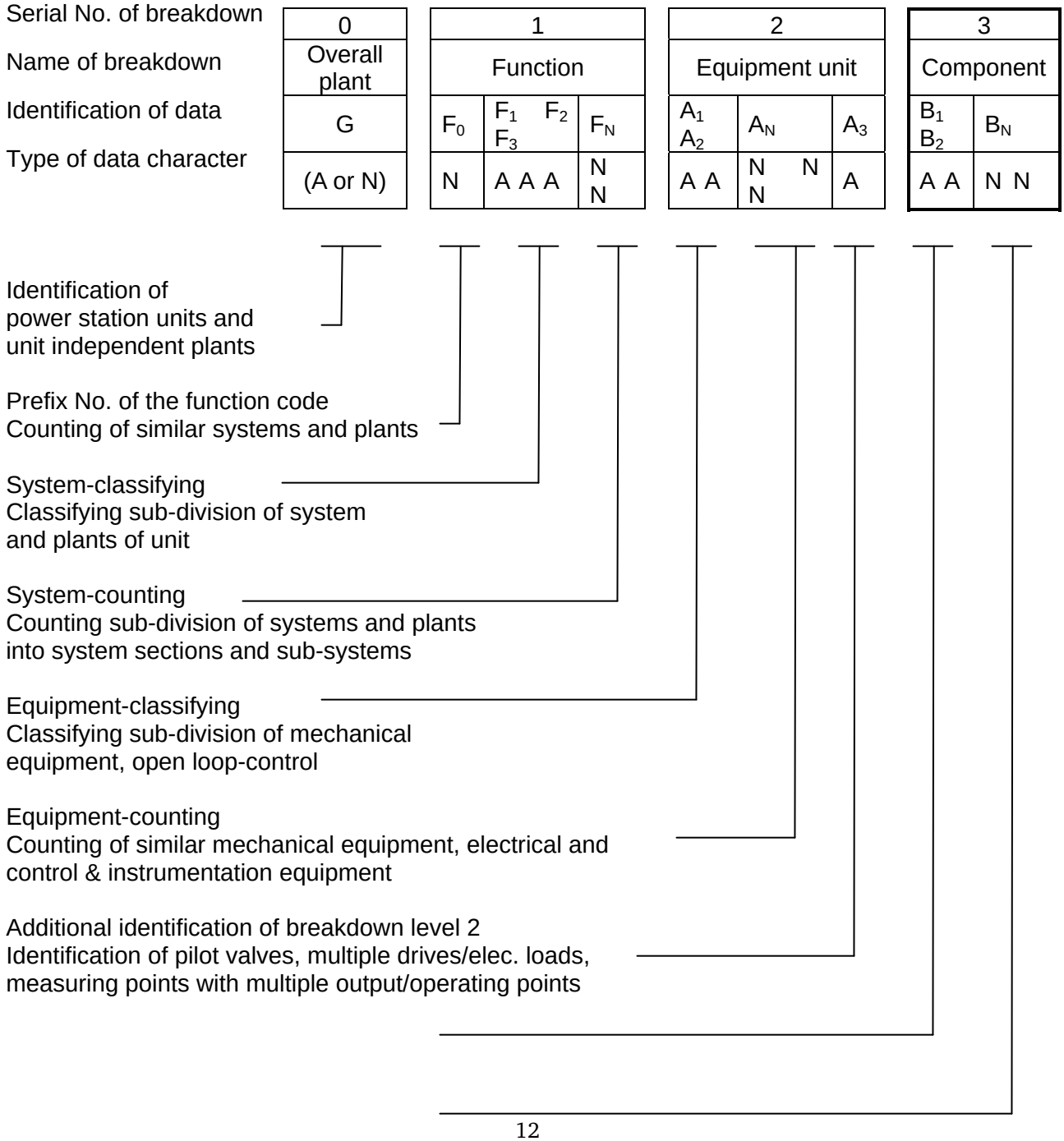
For complete components of the subgroups B_1B_2, see component code (Chapter 5.0).

In P&I diagrams breakdown level 3 is NOT used.

KKS TAGING PROCEDURE:

In other document it may be used according to separate agreements.

1.8 Breakdowns, Contents of KKS Data Character



KKS TAGING PROCEDURE:

Component-classifying
Classifying sub-division of components

Component-counting
Counting of components or signals

The data character marked ( ) and the prefix sign can be omitted of the identification is unequivocal.

2.0 PROJECT RELATED RULES, AGREEMENTS AND PROCEDURES

2.1 General rules on process-related identification

- ☐ Piping & Instrument Diagrams (P&ID) and Single Line Diagram (SLD) are the basic documents (origins) for a project related KKS coding.
- ☐ Single line diagrams are the basic documents (origins) for a project related KKS coding in electrical engineering.
- ☐ For other engineering activities (e.g. layout planning, component engineering), KKS code must always be taken from the above mentioned basic documents.
- ☐ In basic KKS documents (P & IDs and SLD), the breakdown level 3 (Component code) shall not be applied.
- ☐ Special rules on point of installation identification and location identification have to be established within the relevant engineering disciplines (Electrical, I&C and Civil engineering). The basis is the KKS-Application Commentaries, Part B2, B3, and B4 by VGB.

2.2 Rules on Modifications and Cancellations of KKS Numbers

- ☐ It is not allowed to change allocated KKS numbers for a project, if these numbers have been released for the project.
- ☐ The original KKS number is still kept, even when another kind of equipment is used providing that the function according to the KKS equipment unit code is not changed (e.g. substitution of a gate valve by a globe valve).

KKS TAGING PROCEDURE:

- ☐ If in a project hardware component is no longer used, it is not allowed to re-allocate its KKS number for another component in the same project.

2.3 Agreement on Numbering System for Breakdown Level "0" G

Total Plant	Contents
G	
n	N = 1, 2, 3,……,9 for Unit n
0	For components in common to the whole plant (BOP equipment)

(Note) For MUNDRA project, n = 1 of Unit 1 will be used.

(In case of Unit 2 ~ 5, n = 2 ~ 5 will be applied.)

2.4 Agreement on Numbering System for Breakdown Level "1" Fo

Function Prefix No.	Contents
Fo	
0	Boiler island (Boiler, ESP, FGD, Fuel System, Ash System, etc.)
1	Steam turbine/generator island (STG, BFP, CWP, FWH, Condenser, Compressor, etc.)
2	Water treatment island
3	Electrical equipment
4	Instrumentation and control equipment

2.5 General rules on other numbering code elements (Fn, An, Bn).

- ☐ Numbering starts a new when one of the preceding code elements changes.
- ☐ Numbering may be consecutive or grouping.
- ☐ Numbering need not be continuous.

KKS TAGING PROCEDURE:

- Numbering conventions, once established, may not be altered, not even in the event of changes made in the progress of planning.
- Redundant zeros must be written.
- An application-specific scheme of numbering may be established. However, such schemes may not have the effect of reserving numbers in other applications, not even within the same engineering discipline.
- Management systems (e.g. computer checking programs, allocation sheets) have to assure, that no double KKS numbers occur in the project.
- If necessary, subdivisions of number ranges in Fn and An according to the division of work could be made. They have to be written down directly in the Function key code and must be respected by the partners.

2.6 General rules regarding direction of numbering

- Standard designations have priority in all cases.
- Numbers are increased in media or process flow direction.
- Project counting directives refereed to local layouts are related to breakdown level “0”, and prefix number for system code “F1” and structures (F1=U) only.
- The counting is related to any geographical direction (e.g. from South to North, from Right to Left and from Lower part to Upper part).

2.7 Writing Modus of KKS Code

Following structures of the KKS code are allowed:

- In one line with space between Function Level, Equipment Unit Level (and Component Level).

  e.g. 32PAB10AP001(-M01) (eg. Main cooling water pump (motor))

- In two (three) lines

  e.g. 32PAB10

KKS TAGING PROCEDURE:

AP001(-M01)

TABLE 3-2 Function Key (System Code)

A	**GRID AND DISTRIBUTION SYSTEMS**
AD	220kV systems
ADA	220kV systems
ADB	220kV cable terminal
ADC	220kV cable earthing and lightning protection system
AK	6.6kV systems
AKA	High voltage main dist. board
AKE	High voltage sub-dist. board
AN	LV AC/DC distribution (incl. lighting & small power)
ANA	Low voltage main dist. board (free for use up to AND)
ANE	Low voltage sub-dist. board (free for use up to ANN)
AP	Control consoles
APA	Control panel (free for use up to APD)
APE	Interposing relay panel (free for use up to APN)
AQ	Measuring and metering equipment
AQA	Metering panel
AQB	Summation panel
AR	Protection equipment

KKS TAGING PROCEDURE:

ARA	Protection relay panel (free for use up to ARZ)
AS	Decentralized panels and cabinets
ASA	Circuit breaker appurtenance
ASB	Multiplication, conversion, decoupling
ASC	Transducer appurtenance
ASD	Compressed air, hydraulics
ASJ	Automated controls, closed-loop control
ASL	Grid simulation, voltage group selection
ASM	Measuring equipment
ASN	Auxiliary power supply
AT	Equipment for HV system coupling transformer
ATA	Transformer equipment (free for use up to ATZ)
AU	Open-loop control, checkback and auxiliary equipment
AUA	Open-loop control, checkback and auxiliary equipment (free for use up to AUZ)
AV	Marshalling racks
AVA	Marshalling racks (free for use up to AVZ)
AW	Operator instrument panels
AWA	Instrument panels (free for use up to AWZ)
AX	Outdoor/indoor earthing, lightning protection
AXA	Central equipment (free for use up to AXZ)
AY	Grid communication equipment
AYA	Control console telephone system
AYC	Alarm system
AYE	Fire alarm system

KKS TAGING PROCEDURE:

AYG Remote terminal unit

AYJ Remote metering system

B OVERALL ELECTRICAL SINGLE LINE DIAGRAM, SYSTEM DEFINITIONS, CACULCATIONS

BA Power transmission

BAA Isolated phase busduct

from excl. generator bushings, incl. Current and voltage transformers, cooling and ventilation systems to excl. generator transformer low side bushings or to excl. auxiliary power transformer high side bushing test

BAB Generator electrical auxiliary cubides

BAC Generator circuit breaker

BAD Isolated Phase Busducts

BAS Auto voltage regulation system

BAT Generator transformers

BAW Earthing and lightning protection systems

BAX Fluid supply system for control and protection equipment

BAY Measuring and control equipment

BB Medium-voltage unit switchgear

BBA Medium-voltage distribution boards, normal system (free for use up to BBO)

BBP Segregated phase busducts

BBS Neutral earthing resistor

BBT Unit auxiliary transformer

BBX Fluid supply system for control and protection equipment

KKS TAGING PROCEDURE:

BBY	Control and protection equipment
BC	Medium voltage distribution boards and transformers, general-purpose
BCA	Medium voltage distribution boards, general-purpose (free for use up to BCS)
BCT	Station service startup/standby transformer
BCX	Fluid supply system for control and protection equipment
BCY	Control and protection equipment
BF	Low voltage main distribution boards and transformers, normal system
BFA	Low voltage main distribution boards, normal system (free for use up to BFS)
BFT	Low voltage unit transformer, central electrical
BH	Low voltage main distribution boards and transformers, general-purpose
BHA	Low voltage main distribution boards, general-purpose
BHC	Low voltage distribution boards, general-purpose
BHD	Low voltage distribution boards / Motor Control Center (free for use up to BHO)
BHP	Low voltage distribution boards
BHT	Low voltage station transformer, central electrical
BHX	Fluid supply system for control and protection equipment
BHY	Control and protection equipment
BJ	Low voltage sub-distribution boards and transformers
BJA	Low voltage sub-distribution boards (free for use up to BJS)
BJT	Low voltage auxiliary power transformers
BJX	Fluid supply system for control and protection equipment
BJY	Control and protection equipment
BL	Low voltage subdistribution boards and transformers, general-purpose
BLA	Low voltage subdistribution boards, general-purpose

KKS TAGING PROCEDURE:

BLD	Low voltage subdistribution boards (free for use up to BLS)
BLT	Low voltage auxiliary power transformers
BLX	Fluid supply system for control and protection equipment
BLY	Control and protection equipment
BM	Low voltage distribution boards and transformers, (diesel) emergency power system
BMA	Low voltage emergency distribution boards (free for use up to BMS)
BMT	Low voltage auxiliary power transformers (free for use according to voltage level up to BMW)
BMX	Fluid supply system for control and protection equipment
BMY	Control and protection equipment
BR	Low voltage distribution boards, uninterrutible (converter) power supply
BRA	UPS subdistribution bored, central electrical
BRT	Converter (rotary)
BRU	converter (static), inverter
BRV	Emergency power generating equipment
BRX	Fluid supply system for control and protection equipment
BRY	Control and protection equipment
BT	DC supply systems & Battery
BTA	Batteries & Battery accessories (free for use up to BTD)
BTE	Battery charger (free for use up to BTK)
BTL	DC distribution boards (free for use up to BTV)
BTW	Common equipment (free for use up to BTZ)
BU	Direct voltage sub-distribution boards
BUA	Direct voltage sub-distribution boards (free for use up to BUS)

KKS TAGING PROCEDURE:

BUX	Fluid supply system for control and protection equipment
BUY	Control and protection equipment
BV	Direct voltage distribution boards, emergency power system
BVA	Direct voltage emergency distribution boards (free for use up to BVS)
BVX	Fluid supply system for control and protection equipment
BVY	Control and protection equipment
BY	Control and protection equipment
BYA	Control and protection equipment (free for use up to BYU)

C INSTRUMENTATION AND CONTROL EQUIPMENT

(Identification on a priority basis according to main instrumentation and control function also acceptable in composite structure hardware packing systems)

CA	Protective interlocks
CAA	Cabinets for Protective interlocks (free for use up to CAQ)
CB	Functional group control, sub-loop control
CBA	Cabinets for Functional group control (free for use up to CBO)
CBP	Cabinets for synchronization
CBQ	Automated MV bus transfer system
CC	Binary signal conditioning
CCA	Cabinets for binary signal conditioning (free for use up to CCQ)
CD	Drive control interface
CDA	Cabinets for Drive control interface (free for use up to CDQ)
CE	Annunciation
CEA	Fault Recorder

KKS TAGING PROCEDURE:

CEK	Fault recording (free for use up to CEQ)
CF	Measurement, recording
CFA	Cabinets for measurement (free for use up to CFF)
CFQ	Tariff metering on HV terminal points
CG	Closed-loop control (excl. power section)
CGA	Closed-loop control (free for use up to CGH)
CH	Protection (excl. reactor protection)
CHA	Protection and synchronizing (generator and transformers)
CHE	Protection (excl. reactor protection)(free for use up to CHY)
CJ	Unit coordination level
CJA	Unit coordination level (including cabinets)
CJD	Start-up control, setpoint control (unit)(incl. Cabinets)
CJF	Boiler control system (incl. Cabinets)
CJJ	Instrumentation and control cabinets for water/steam cycle and ST
CJP	Instrumentation and control cabinets for gas turbine set (free for use up to CJT)
CJU	Instrumentation and control cabinets for other main and heavy machinery (free for use up to CJY)
CK	Process computer system
CKA	I & C cabinets for star coupler
CKJ	Access control computer (free for use up to CKM)
CKN	Process computer system (free for use up to CKZ)
CM	Instrumentation and control equipment (free for use for system combination)
CMA	Large screen (free for use up to CMT)
CP	Remote module cabinets

KKS TAGING PROCEDURE:

CPE	Interposing relay panel for remote-electric
CQ	Instrumentation and control equipment (free for use for system combination)
CR	Operating, monitoring and engineering system
CS	Instrumentation and control equipment (free for use for system combination)
CT	Process & I/O cabinet
CTE	Process & I/O cabinet for remote-electric
CU	Closed-loop control (excl. power section)
CUA	Closed-loop control (free for use up to CUQ)
CV	Marshalling racks
CVA	Marshalling racks (free for use up to CVO)
CVP	Marshalling racks for remote-electric
CW	Control rooms
CWA	Main control desk unit
CWF	Main control panel (free for use up to CWP)
CWQ	Main control room equipment – printer
CWV	Vibration monitoring system
CX	Local control stations (e.g. for cooling water systems, diesel units, supervision of generator cooling, remote shutdown station)
CXA	Local control stations (free for use up to CXY)
CY	Telecommunication
CYA	Telephone system (PABX)
CYB	Intercom system
CYC	Alarm system (acoustic)
CYD	Alarm system (optical)

KKS TAGING PROCEDURE:

CYE	Fire alarm system
CYF	Clock system
CYG	Remote control system
CYH	Telemetry system
CYJ	Remote metering system
CYK	HF carrier telephone system
CYL	Staff paging system, wireless
CYM	Staff paging system, inductive
CYN	Staff paging system, hardwired
CYP	Closed circuit television system (site security)
CYQ	Gas detection system
CYR	Pneumatic tube conveyor
CYS	Radiotelephone system

E	**FUEL AND ASH HANDLING**
EA	Complete Unloading and storage of solid fuels incl. conveying (incoming) system
EAA	Ship unloading system
EAB	Truck unloading bay and equipment
EAC	Transport system (incoming)
EAD	Stacking system
EAE	Bunker system, storage area (stockyard)
EAF	Bucket wheel system, reclaimer system incl. rails and bolts
EAT	Weighing equipment (incoming section)
EAU	Sampling equipment (coal “as delivered”)

KKS TAGING PROCEDURE:

EAY	Metal detection (incoming section)
EB	Mechanical treatment of solid fuels (also for gas generation and treatment)
	(Crushing, mixing, drying, etc.)
EBA	Transport system
EBB	Mixing Blending system
EBC	Crushing system incl. crucher platform (steel structure)
EBD	Screening system
EBE	Dedusting, Metal separator and discharge, Vacuum Cleaning
EBF	Temporary storage system for milled raw coal
EBG	Predrying system
EBH	Main drying system
EBJ	Dried coal transport system including aftercooling
EBK	Dried coal temporary storage system
EBL	Vapor compressor system
EBM	Exhaust system
EBR	Residues removal system
EBT	Weighing equipment
EBU	Sampling system
EBY	Control and protection equipment
EC	Distribution of solid fuels (outgoing = from storage to Boiler Bunker)
ECT	Weighing equipment (outgoing section)
ECU	Sampling equipment (coal “as fired”)
ECY	Metal Detection (outgoing section)
ED	Chemical treatment of solid fuels in residues removal

KKS TAGING PROCEDURE:

(e.g. desulfurization plant)

EE Conversion of solid fuels

EG Supply of liquid fuels (LDO & HFO)

EGA Unloading station

EGB Tank farm for liquid fuel

from excl. tank inlet to incl. tank outlet

EGC Forwarding Pump system

from incl. Pump system suction nozzles to incl. pump system discharge nozzles

EGD Liquid fuel Piping system

from excl. tank outlet to excl. temporary storage system or ranch to user

EGE Mechanical cleaning, scrubbing system

EGF Temporary storage system

EGG Preheating system

EGR Collecting System

EGT Heating medium system

EGU Billing meter system

EGV Lubricant supply system

EGX Fluid supply system for control and protection equipment

EGY Control and protection equipment

EH Chemical treatment of liquid fuels including residues removal

(light and heavy oil fuel)

EHA Chemical treatment of liquid fuels including residues removal (free for use up to EHU)

EHV Lubricant supply system

EHX Fluid supply system for control and protection equipment

KKS TAGING PROCEDURE:

EHY	Control and protection equipment
EK	Supply of gaseous fuels
EKA	Receiving equipment incl. Pipeline
EKB	Moisture separation system
EKC	Heating system
EKD	Main reducing station, expansion turbine
EKE	Mechanical cleaning, scrubbing
EKF	Storage system
EKG	Piping system
EKH	Main pressure boosting system
EKR	Residues removal system
EKT	Heating medium system
EKV	Lubricant supply system
EKW	Sealing fluid supply system
EKX	Fluid supply system for control and protection equipment
EKY	Control and protection equipment
EL	Chemical treatment of gaseous fuels including residues removal
EM	Supply and treatment of fluxing agents
EN	Supply of liquid fuels (LDO & HFO)
ENA	Receiving equipment incl. Pipeline
ENB	Tank farm
ENC	Pump system
END	Piping stsrem
ENE	Mechanical cleaning, scrubbing system

KKS TAGING PROCEDURE:

ENF	Temporary storage system
ENG	Preheating system
ENR	Residues removal system
ENT	Heating medium system
ENX	Fluid supply system for control and protection equipment
ENY	Control and protection equipment
EP	Treatment of other fuels (as main fuel)
EPC	Pump system
EPD	Piping stsrem
EPG	Physical treatment of light fuel oil
EPR	Physical treatment of heavy fuel oil
EPT	Heating medium system
EPX	Fluid supply system for control and protection equipment
EPY	Control and protection equipment
EQ	Conversion of other fuels (as main fuel)
ER	Ignition fuel supply
ERA	Pulverized coal supply system
ERB	Oil supply system
ERC	Gas supply system
ERY	Control and protection equipment
ES	Supply and treatment of supplementary fuels
ET	Ash and slag removal system incl. conveying, storage and compressed air system
ETA	Wet ash discharge, pumping and conveying system
ETB	Wet ash storage and settling tanks and equipment

KKS TAGING PROCEDURE:

ETC	Wet ash dredger
ETD	Conveying system for granulate
ETE	Storage system for granulate
ETG	Conveying system for dry ash
ETH	Storage system for dry ash
ETK	Common conveying system for wet and dry ash
ETL	Common storage system for wet and dry ash
ETM	Settling plant for wet and dry ash
ETN	Extraction, Forwarding, distribution, recovery and disposal systems for flushing and ash water
ETP	Generation and distribution system for carrier air
ETX	Fluid supply system for control and protection system
ETY	Control and protection equipment
EU	Treatment and transport system for combustion, fuel treatment, fuel conversion, flue gas cleaning, gas generation residues
EUA	Treatment system for fuel treatment residues
EUB	Treatment system for fuel conversion residues
EUC	Treatment system for fuel combustion residues
EUD	Treatment system for flue gas cleaning residues
EUE	Treatment system for gas generation and treatment residues
EUF	Treatment system for fuel treatment residues
EUH	Treatment system for fuel conversion residues
EUK	Treatment system for fuel combustion residues
EUM	Treatment system for flue gas cleaning residues

KKS TAGING PROCEDURE:

EUP	Treatment system for gas generation and treatment residues
EW	Sealing fluid supply system/decompacting medium supply system

G	**WATER SUPPLY AND DISPOSAL**
GA	Inside site fence raw water supply
GAA	Extraction, mechanical cleaning
GAC	Piping, channel and pump system
GAD	Storage system
GAT	Pump system
GAV	Lubricant supply system
GAX	Fluid supply system for control and protection equipment
GAY	Control and protection equipment
GB	make-up water treatment system
GBB	Filtering, mechanical cleaning system
GBC	Aeration, gas injection system
GBD	Precipitation system
GBE	Acid proportioning system
GBF	Ion exchange, reverse osmosis system
GBG	Evaporation system
GBH	Deaeration, drying system
GBJ	Preheating, cooling system
GBK	Piping system, temporary storage system, pump system for main fluid
GBL	Storage system outside fluid treatment system (if not part of another system)
GBN	Chemical supply system

KKS TAGING PROCEDURE:

GBP	Regeneration, flushing equipment
GBQ	Injection system for main fluid
GBR	Flushing water and residues removal system incl. neutralization
GBS	Sludge thickening system
GBT	Heating, cooling and flushing fluid distribution system
GBV	Lubricant supply system
GBX	Fluid supply system for control and protection equipment
GBY	Control and protection equipment
GC	Treatment system (Desalination)
GCB	Filtering, mechanical cleaning system
GCC	Aeration, gas injection system
GCD	Precipitation system
GCE	Acid proportional system
GCF	Ion exchange, reverse osmosis system
GCG	Evaporation system
GCH	Deaeration, drying system
GCJ	Preheating, cooling system
GCK	Piping system, temporary storage system, pump system for main fluid
GCL	Storage system outside fluid treatment system (if not part of another system)
GCN	Chemical supply system
GCP	Regeneration, flushing equipment
GCQ	Injection system for main fluid
GCR	Flushing water and residues removal system incl. Neutralization
GCS	Sludge thickening system

KKS TAGING PROCEDURE:

GCT	Heating, cooling and flushing fluid distribution system
GCV	Lubricant supply system
GCX	Fluid supply system for control and protection equipment
GCY	Control and protection equipment
GD	Water Treatment system (others)
GDB	Filtering, mechanical cleaning system
GDC	Aeration, gas injection system
GDD	Precipitation system (e.g. for carbonate hardness removal)
GDE	Acid proportioning system (e.g. for carbonate hardness removal)
GDF	Ion exchange, reverse osmosis system (e.g. for demineralization)
GDG	Evaporation system (e.g. for demineralization)
GDH	Deaeration, drying system
GDJ	Preheating, cooling system
GDK	Piping system, temporary storage system, pump system for main fluid
GDL	Storage system outside fluid treatment system (if not part of another system)
GDN	Chemical supply system
GDP	Regeneration, flushing equipment
GDQ	Injection system for main fluid
GDR	Flushing water and residues removal system incl. Neutralization
GDS	Sludge thickening system
GDT	Heating, cooling and flushing fluid distribution system
GDV	Lubricant supply system
GDX	Fluid supply system for control and protection equipment
GDY	Control and protection equipment

KKS TAGING PROCEDURE:

GH	Distribution systems (not drinking water, not cooling water)
GHA	Distribution systems after treatment (desalination)
GHB	Distribution systems after treatment (demineralization)
GHC	Demineralized water distribution system
GHD	Distribution systems after treatment for steam turbine building
GHE	Distribution systems after treatment for emergency diesel generator building
GHF	Distribution systems after treatment for first aid station
GHG	Distribution systems after treatment for water treatment building
GHH	Distribution systems after treatment for circulating water pump building
GHK	Distribution systems after treatment for chlorination building
GHP	Distribution systems after treatment for circulating water pump control building
GHQ	Distribution systems after treatment for auxiliary building
GHS	Distribution systems after treatment for ancillary building
GK	Drinking water supply
GKA	Potable water treatment
GKB	Storage, forwarding, distribution system
GKC	Drinking water supply for central control building
GKF	Drinking water supply for first aid station
GKG	Drinking water supply for water treatment building
GKQ	Drinking water supply for auxiliary building
GKS	Drinking water supply for ancillary building
GKX	Fluid supply system for control and protection equipment
GKY	Control and protection equipment
GM	Process drainage system

KKS TAGING PROCEDURE:

GMA	Process drainage system for control & electrical equipment
GMC	Process drainage system for switch gear
GME	Process drainage system for conventional fuel supply and residue disposal
GMG	Process drainage system for water supply and disposal
GMH	Process drainage system for conventional heat generation
GML	Process drainage system for steam water cycle
GMM	Process drainage system for main machine sets
GMN	Process drainage system for process energy supply
GMP	Process drainage system for circulating (cooling) water systems
GMQ	Process drainage system for auxiliary systems
GMS	Process drainage system for general service systems
GMX	Fluid supply system for control and protection equipment
GMY	Control and protection equipment
GN	Plant drains treatment system
GNB	Filtering, mechanical cleaning system
GNC	Aeration, gas injection system
GND	Precipitation system (e.g. for carbonate hardness removal)
GNE	Acid proportional system (e.g. for carbonate hardness removal)
GNF	Ion exchange system (e.g. for demineralization)
GNG	Evaporation system (e.g. for demineralization)
GNH	Deaeration, drying system
GNJ	Preheating, cooling system
GNK	Piping system, temporary storage system, pump system for main fluid
GNL	Storage system outside fluid treatment system (if not part of another system)

KKS TAGING PROCEDURE:

GNN	Chemical supply system
GNP	Regeneration, flushing equipment
GNQ	Injection system for main fluid
GNR	Flushing water and residues removal system incl. Neutralization
GNS	Sludge thickening system
GNT	Heating, cooling and flushing fluid distribution system
GNV	Lubricant supply system
GNX	Fluid supply system for control and protection equipment
GNY	Control and protection equipment
GQ	Domestic waste water collection and drainage systems
GQC	Domestic waste water collection and drainage systems for central control building
GQD	Domestic waste water collection and drainage systems for steam turbine building
GQE	Domestic waste water collection and drainage systems for emergency diesel generator building
GQF	Domestic waste water collection and drainage systems for first aid station
GQG	Domestic waste water collection and drainage systems for water treatment building
GQH	Domestic waste water collection and drainage systems for circulating water pump building
GQK	Domestic waste water collection and drainage systems for chlorination building
GQP	Domestic waste water collection and drainage systems for circulating water pump control building
GQQ	Domestic waste water collection and drainage systems for auxiliary building
GQS	Domestic waste water collection and drainage systems for ancillary building
GQX	Fluid supply system for control and protection equipment

KKS TAGING PROCEDURE:

GQY	Control and protection equipment
GR	Domestic waste water treatment system
GRB	Filtering, mechanical cleaning system
GRC	Aeration, gas injection system
GRD	Precipitation system (e.g. for carbonate hardness removal)
GRE	Acid proportional system (e.g. for carbonate hardness removal)
GRF	Ion exchange system (e.g. for demineralization)
GRG	Evaporation system (e.g. for demineralization)
GRH	Deaeration, drying system
GRJ	Preheating, cooling system
GRK	Piping system, temporary storage system, pump system for main fluid
GRL	Storage system outside fluid treatment system (if not part of another system)
GRN	Chemical supply system
GRP	Regeneration, flushing equipment
GRQ	Injection system for main fluid
GRR	Flushing water and residues removal system incl. Neutralization
GRS	Sludge thickening system
GRT	Heating, cooling and flushing fluid distribution system
GRV	Lubricant supply system
GRX	Fluid supply system for control and protection equipment
GRY	Control and protection equipment
GU	Rainwater collection and drainage system
GUA	Rainwater collection and drainage systems (free for use e.g building-specific up to GUU)

KKS TAGING PROCEDURE:

GUX	Fluid supply system for control and protection equipment
GUY	Control and protection equipment
GY	Control and protection equipment
GYA	Control and protection equipment (free for use up to UYU)

H	**CONVENTIONAL HEAT GENERATION**
HA	Pressure system
HAA	LP part-flow feed heating system (flue-gas-heated)
HAB	HP part-flow feed heating system (flue-gas-heated)
HAC	Economizer system
HAD	Evaporator system incl. drum
HAG	Circulating system incl. boiler circulation pump
HAH	HP superheater system
HAJ	Reheater system
HAK	Secondary reheater system
HAM	Triflux system
HAN	Pressure system drainage and venting systems
HAV	Lubricant supply system
HAW	Sealing fluid supply system
HAX	Fluid supply system for control and protection equipment
HAY	Control and protection equipment
HB	Support structure, enclosure, steam generator interior
HBA	Frame, Support structure
HBB	Enclosure, insulation, cladding

KKS TAGING PROCEDURE:

HBC	Brick lining including insulating brickwork, if required
HBD	Platforms, stairways
HBK	Steam generator interior
HC	Fireside heat transfer surface cleaning equipment
HCB	Steam sootblowing system
HCC	Water sootblowing system
HCD	Flushing equipment
HCF	Shot cleaning system
HCV	Lubricant supply system
HCW	Sealing fluid supply system
HCX	Fluid supply system for control and protection equipment
HCY	Control and protection equipment
HD	Ash and slag removal, particulate removal
HDA	Furnace ash removal, furnace slag removal, bed ash removal
HDB	Bed ash return system
HDC	Flue dust discharge and return system
HDD	Mechanical dust handling system
HDE	Electrostatic precipitator
HDF	Cyclone dust removal and return system
HDT	Fluid supply for ash, slag and dust moistening
HDU	Carrier air supply
HDW	Sealing fluid supply system
HDY	Control and protection equipment for ESP
HF	Bunker, feeder and pulverizing system

KKS TAGING PROCEDURE:

HFA	Bunker for pulverizing system incl. level measurement
HFB	Feeder system
HFC	Pulverizing system (including classifier)
HFD	Flue gas return system
HFE	Mill air system, carrier air system
HFF	Vapor/exhaust gas system
HFG	Pulverized coal temporary storage bunker after central pulverizing system (indirect firing)
HFW	Sealing fluid supply system
HFY	Control and protection equipment
HH	Main firing system
HHA	Main burner
HHB	Retarded combustion grate
HHC	Grate combustion system
HHD	Other burner equipment (e.g. vapor burner, flue dust burner)
HHE	forwarding and distribution system
HHF	Oil temporary storage, pump and distribution system
HHG	Gas pressure reduction, distribution system
HHH	Temporary storage, forwarding and distribution system for other fuels, fluid 1
HHJ	Temporary storage, forwarding and distribution system for other fuels, fluid 2
HHK	Temporary storage, forwarding and distribution system for other fuels, fluid 3
HHL	Combustion air supply system
HHM	Atomizer medium supply system (steam)
HHN	Atomizer medium supply system (air)

KKS TAGING PROCEDURE:

HHP	Coolant supply system (steam)
HHQ	Scanner purge system
HHR	Purging medium supply system (steam)
HHS	Purging medium supply system (air)
HHT	Heating medium supply system (steam)
HHU	Heating medium supply system (hot water)
HHY	Control and protection equipment
HHZ	Electric heating system
HJ	Ignition and support firing equipment (if separate)
HJA	Ignitor
HJE	Forwarding and distribution system
HJF	Oil temporary storage (daily tank), pump and distribution system
HJG	Gas pressure reduction, distribution system
HJL	Combustion air supply system
HJM	Atomizer medium supply system (steam)
HJN	Atomizer medium supply system (air)
HJP	Coolant supply system (steam)
HJQ	Coolant supply system (air)
HJR	Purging medium supply system (steam), if required
HJS	Purging medium supply system (air), if required
HJT	Heating medium supply system (steam)
HJU	Heating medium supply system (hot water)
HJX	Fluid supply system for control and protection equipment
HJY	Control and protection equipment

KKS TAGING PROCEDURE:

HL	Combustion air system (primary air, secondary air)
HLA	Ducting system
HLB	Fan system, forced-draught fan system
HLC	Steam AH condensate return incl. pumps
HLD	Air heating system (flue-gas-heated)
HLU	Air pressure relief system
HLY	Control and protection equipment
HM	Gas heating system (for closed cycle)
HMA	Primary heater (primary convection section)
HMB	Radiation section
HMC	Secondary heater (secondary convection section)
HMD	Reheat system
HMY	Control and protection equipment
HN	Flue gas exhaust (without flue gas treatment)
HNA	Ducting system
HNC	Induced-draught fan system
HNE	Chimney outlet TV camera incl. monitor, cooling and cleaning system, console, panel etc.
HNF	Flue gas recirculation system
HNU	Flue gas pressure relief system
HNV	Lubricant supply system
HNW	Sealing fluid supply system
HNX	Fluid supply system for control and protection equipment
HNY	Control and protection equipment (e.g diverter)

KKS TAGING PROCEDURE:

HR	Chemical flue gas treatment system including residues removal, adsorptive process (e.g. dry additives)
HS	Chemical flue gas treatment system including residues removal, catalytic process (e.g. DENOX)
HAS	Flue gas ducting system within *HS*
HSB	Flue gas-side heat exchanger, gas heater (not *HU*)
HSC	Flue gas fan system
HSD	Reactor (reduction)
HSE	Converter (oxidation)
HSF	Flue gas-side cleaning equipment for reactor
HSG	Reduction agent dilution system
HSH	(Residues) separator
HSJ	Reduction agent supply system including storage system
HSK	Reduction agent treatment and distribution system
HSL	Water supply and disposal system
HSM	Chemicals and additives supply system
HSN	Drainage system
HSP	Fly ash collecting system (including filtering) and removal system
HSQ	Sprinkler system including drainage
HSR	Oxidizing agent treatment and distribution system
HSS	(Residues) forwarding, storage, loading system
HST	Flushing fluid system including supply
HSU	Heating fluid system
HSW	Sealing fluid supply system

KKS TAGING PROCEDURE:

HSX	Fluid supply system for control and protection equipment
HSY	Control and protection equipment
HT	Chemical flue gas treatment system including residues removal, absorptive process (e.g. flue gas desulfurization plants)
HTA	Flue gas ducting system within *HT*
HTB	Flue gas-side heat exchanger, gas heater (not *HU*)
HTC	Flue gas fan system
HTD	Flue gas scrubbing system
THE	Flue gas cleaning and filtering system
HTF	Absorption cycle
HTG	Oxidation system including supply system
HTH	Flue gas cooling system
HTJ	Absorbent supply system including storage system
HTK	Absorbent preparation and distribution system
HTL	Piping system for discharge of solids
HTM	Thickening and solids dewatering system
HTN	Solid drying, compacting system
HTP	(Solids / product) forwarding, storage, loading system
HTQ	FGD plant water supply and disposal system
HTS	Chemicals and additives supply system
HTT	Drainage system
HTW	Sealing fluid supply system
HTX	Fluid supply system for control and protection equipment
HTY	Control and protection equipment

KKS TAGING PROCEDURE:

HU	Flue gas reheating system
HY	Control and protection equipment

L	**STEAM-WATER CYCLE**
LA	Feedwater system
LAA	Deaerator, feedwater tank
LAB	Feedwater piping system (excl. Feedwater pump)
LAC	Feedwater pump system
LAD	HP feedwater heating system
LAE	HP desuperheating spray system
LAF	IP desuperheating spray system
LAH	Start-up and shutdown piping system
LAJ	Start-up and shutdown pump system
LAV	Lubricant supply system
LAW	Sealing fluid supply system
LAX	Fluid supply system for control and protection equipment
LAY	Control and protection equipment
LB	Steam system
LBA	Main steam piping system
LBB	Hot reheat piping system
LBC	Cold reheat piping system
LBD	Extraction piping system
LBE	Back-pressure piping system
LBF	HP-bypass station

KKS TAGING PROCEDURE:

LBG	Auxiliary steam piping system
LBH	Start-up steam system, shutdown steam system
LBJ	Moisture separator / reheater (MSR)
LBQ	Extraction steam piping system for HP feedwater heating
LBR	Piping system for branch or auxiliary turbine
LBS	Extraction steam piping system for LP feedwater heating (main condensate)
LBT	Emergency condensing system
LBU	Common dump line
LBW	Sealing steam system
LBX	Fluid supply system for control and protection equipment
LBY	Control and protection equipment
LC	Condensate system
LCA	Main condensate piping system (excl. main condensate pump system,
LP	feedwater heating system, condensate polishing plant)
LCB	Main condensate pump system
LCC	LP feedwater heating system
LCE	Condensate desuperheating spray system
LCF	Branch turbine condensate piping system
LCG	Branch turbine condensate pump system
LCH	HP heater drains system
LCJ	LP heater drains system
LCL	Boiler blow down tank
LCM	Clean drains system
LCN	Auxiliary steam condensate system (collecting and return system)

KKS TAGING PROCEDURE:

LCP	Standby condensate system
LCQ	Steam generator blowdown system
LCR	Standby condensate distribution system
LCS	Reheater drains system (moisture separator / reheater)
LCT	Moisture separator drains system (moisture separator / reheater)
LCW	Sealing and cooling drains system
LCX	Fluid supply system for control and protection equipment
LCY	Control and protection equipment
LD	Condensate polishing system
LDA	Fluid treatment extraction system
LDB	Filtering, mechanical cleaning
LDC	Aeration, gas injection system
LDD	Electromagnetic polishing system
LDE	Acid proportioning system (e.g. for carbonate hardness removal)
LDF	Ion exchange, reverse osmosis system (e.g. demineralization)
LDG	Evaporation system (e.g. demineralization)
LDH	Deaeration
LDJ	Preheating, cooling system
LDK	Piping system, temporary storage system, pump system for main fluid
LDL	Storage system outside fluid treatment system (if not part of another system)
LDN	Chemicals supply system
LDP	Regeneration, flushing equipment
LDQ	Injection system for main fluid
LDR	Flushing water and residues removal system including neutralization

KKS TAGING PROCEDURE:

LDS	Sludge thickening system
LDT	Heating, cooling and flushing fluid distribution system
LDX	Fluid supply system for control and protection equipment
LDY	Control and protection equipment
LF	Common installations for steam, water, gas cycle
LFC	Common drain and vent systems
LFJ	Steam generator lay-up system
LFN	Proportioning system for feedwater, condensate system, incl. Proportioning in boiler and turbine area
LK	Gas system (closed cycle)
LKA	Storage system
LKB	Piping system
LKC	Compressor system (if separate from gas turbine)
LKD	Preheating system
LKE	Precooling system
LKF	Intercooling system
LKG	Pressurizing system
LKW	Sealing fluid supply system
LKX	Fluid supply system for control and protection equipment
LKY	Control and protection equipment
LL	Gas cleaning system (only for closed cycle)
LN	Water impounding works for gas system (closed cycle)
LV	Lubricant supply system
LW	Sealing fluid supply system for steam, water, gas cycles

KKS TAGING PROCEDURE:

LY	Control and protection equipment
LYA	Control and protection equipment (free for use up to LYU)

M	**MAIN MACHINE SETS**
MA	Steam turbine plant
MAA	HP steam turbine
MAB	IP steam turbine
MAC	LP steam turbine
MAD	Turbine Bearings
MAG	Condensing system
MAH	Motive water system (if separate from *MAJ*)
MAJ	Air removal system
MAK	Transmission gear between prime mover and driven machine, incl. turning gear
MAL	Turbine Drain and vent systems
MAM	Leak-off steam system
MAN	IP + LP – bypass system
MAP	LP turbine bypass system
MAQ	Vent system (if separate from *MAL*)
MAV	Lubricant supply system
MAW	Sealing, heating and cooling steam system
MAX	Non-electric control and protection equipment, incl. fluid supply system
MAY	Electric control and protection equipment
MB	Gas turbine plant
MBA	Turbine, compressor rotor with common casing

KKS TAGING PROCEDURE:

MBB	Turbine casing and rotor
MBC	Compressor casing and rotor
MBD	Bearings
MBE	Coolant system for gas turbine plant
MBH	Cooling and sealing gas system
MBJ	Start-up unit
MBK	Transmission gear between prime mover and driven machine, incl. turning gear, barring gear
MBL	Intake air, cold gas system (open cycle)
MBM	Combustion chamber (gas heating, combustion)
MBN	Fuel supply system (liquid)
MBP	Fuel supply system (gaseous)
MBQ	Ignition fuel supply system (if separate)
MBR	Exhaust gas system (e.g. bypass stack)
MBS	Storage system
MBT	Motive gas generator unit, including combustion chamber
MBU	Additive system
MBV	Lubricant supply system
MBW	Sealing oil supply system
MBX	Non-electric control and protection equipment, incl. fluid supply system
MBY	Electric control and protection equipment
MBZ	Lubricant and control fluid treatment system
MJ	Diesel engine plant
MJA	Machine casing parts

KKS TAGING PROCEDURE:

MJB	Turbochargers and auxiliary blowers
MJC	Cylinders
MJD	Bearings
MJE	Crank assembly
MJG	Cooling water equipment
MJH	Air coolers
MJK	Power transmission (including turbine gear)
MJN	Fuel systems
MJP	Start up system
MJQ	Air intake system
MJR	Exhaust gas system
MJV	Lubrication oil system
MJW	Sealing fluid supply system
MJX	Mechanical control, regulation and protection equipment
MJY	Electric control, regulation and protection equipment
MK	Generator plant
MKA	Generators
MKB	Generator exciter set, including set with electrical breaking system (use only if *MKC* is not sufficient for identification)
MKC	Generator exciter set, including set with electrical breaking system, complete (10 auxiliary excitation, 20 main excitation unit)
MKD	Generator Bearings
MKF	Primary water system
MKG	Gas cooling supply system

KKS TAGING PROCEDURE:

MKH	Stator/rotor nitrogen(N2) / carbon dioxide(CO2) cooling system, including coolant supply system
MKJ	Generator gas cooling system (DAC)
MKQ	Exhaust gas system (if separate from *MKG* and *MKH*)
MKP	Secondary cooling water system
MKT	Excitation Transformer
MKV	Lubricant supply system (if separate system for generator)
MKW	Sealing fluid supply system (Sealing oil system, incl. supply and treatment)
MKX	Fluid supply system for control and protection equipment
MKY	Control and protection equipment
MM	Compressor plant
MMA	Compressor including internal systems
MMC	Air intake piping system
MMD	Bearings
MME	Inercooling system
MMF	Aftercooling system
MMG	Final cooling system
MMH	Discharge piping system
MMV	Lubricant supply system
MMW	Sealing fluid supply system
MMX	Fluid supply system for control and protection equipment
MMY	Control and protection equipment
MP	Common installations for main machine sets
MPA	Foundation

KKS TAGING PROCEDURE:

MPB	Sheathing
MPG	Frame, support structure
MPR	Forced cooling system
MPS	Drying and layup system
MY	Control and protection equipment
MYA	(free for use up to MYU)

P	**COOLING WATER SYSTEMS**
PA	Circulating water system
PAA	Circulating water extraction and mech cleaning system
PAB	Circulating water supply
PAC	Circulating (main cooling) water pump system
PAD	Cooling tower
PAE	Cooling tower pump system (if separate)
PAH	Condenser tube cleaning system
PAR	Make-up water system (incl. PAS pump)
PAS	Make-up water pump system
PAV	Lubricant supply system
PAX	Fluid supply system for control and protection equipment
PAY	Control and protection equipment
PC	Auxiliary cooling water system
PCA	Extraction, mechanical cleaning
PCB	Auxiliary cooling water system
PCC	Pump system

KKS TAGING PROCEDURE:

PCD	Recirculating cooling system (wet CT)
PCH	Heat exchanger cleaning system
PCV	Lubricant supply system
PCX	Fluid supply system for control and protection equipment
PCY	Control and protection equipment
PG	Closed cooling water system
PGA	Closed cooling water piping system (forward)
PGB	Closed cooling water piping system (return)
PGC	Closed cooling water pump system
PGD	Closed cooling water air cooler system
PGF	Pressure system
PGH	Closed cooling water system for main groups *E* and *H*
PGL	Closed cooling water system for main groups *G*, *L* and *P*
PGM	Closed cooling water system for main groups *B*, *M* and *X*
PGX	Fluid supply system for control and protection equipment
PGY	Control and protection equipment
PU	Common equipment for cooling water systems
PUC	Common equipment for cooling water systems
PUD	Fish barrier
PUE	Air evacuation system for circulating cooling water system
PUK	Cooling water biocide treatment
PUN	Dosing system for biocide
PY	Control and protection equipment
PYA	Control and protection equipment (free for use up to PYU)

KKS TAGING PROCEDURE:

Q	**AUXILIARY SYSTEMS**
QC	Central chemicals supply
QCA	Hydrazine supply and distribution system
QCB	Corrosion inhibitor dosing system for open component cooling systems
QCC	Phosphate supply and distribution system
QCD	Ammonia supply and distribution system
QCH	Sodium hydroxide supply and distribution system
QCL	Oxygen dosing system (including H_2O_2 dosing)
QCV	Lubricant supply system
QCX	Fluid supply system for control and protection equipment
QCY	Control and protection equipment
QE	General compressed air and carrier air supply
QEA	Central compressed air and carrier air generation system
QEB	Central compressed air and carrier air distribution system
QEE	Compressed air supply system for main groups *E*
QEH	Compressed air supply system for main groups *H*
QEL	Compressed air supply system for main groups *G*,*L* and *P*
QEM	Compressed air supply system for main groups *B*, *M* and *X*
QEQ	Compressed air supply system for main groups *Q*
QES	Compressed air supply system for main groups *S*
QEV	Lubricant supply system
QEW	Sealing fluid supply system
QEX	Fluid supply system for control and protection equipment

KKS TAGING PROCEDURE:

QEY	Control and protection equipment
QF	Instrument air supply system
QFA	Instrument air generation system
QFB	Central control air distribution system
QFC	General control air supply
QFE	Control air supply system for main group *E*
QFF	Control air treatment system
QFH	Control air supply system for main group *H*
QFL	Control air supply system for main group *G*,*L* and *P*
QFM	Control air supply system for main group *B*,*M* and *X*
QFQ	Control air supply system for main group *Q*
QFS	Control air supply system for main group *S*
QFV	Lubricant supply system
QFW	Sealing fluid supply system
QFX	Fluid supply system for control and protection equipment
QFY	Control and protection equipment
QH	Auxiliary steam generating system
QHA	Pressure system
QHB	Support structure, enclosure, steam generator interior
QHC	Fireside heat transfer surface cleaning equipment
QHD	Ash and slag removal
QHE	Blowdown system, flash drain system
QHF	Bunker, feeder and pulverizing system
QHG	Boiler water circulation system (also for electrode steam boiler)

KKS TAGING PROCEDURE:

QHH	Main firing system (also for electric heating)
QHJ	Ignition firing equipment (if separate)
QHL	Combustion air system (primary air, secondary air)
QHM	Gas heating system (for closed cycle)
QHN	Flue gas exhaust (without flue gas treatment)
QHP	Mechanical dust handling system
QHQ	Electrostatic precipitator
QHU	Flue gas reheating system
QHV	Lubricant supply system
QHX	Fluid supply system for control and protection equipment
QHY	control and protection equipment
QJ	Central gas supply, also inert gas for main and heavy machinery
QJB	Gas supply and distribution system N_2
QJC	Gas supply and distribution system H_2
QJE	Gas supply and distribution system CO_2
QJY	Control and protection equipment
QK	Chilled water systems
QKA	Central water chiller
QKC	Chilled water systems assigned to structures (free for use up to QKU)
QL	Feedwater, steam, condensate cycle of auxiliary steam generating and distribution system
QLA	Feedwater system
QLB	Steam system
QLC	Condensate system

KKS TAGING PROCEDURE:

QLD	Condensate polishing plant
QLF	Common equipment for auxiliary steam generation and distribution system
QLV	Lubricant supply system
QLX	Fluid supply system for control and protection equipment
QLY	Control and protection equipment
QU	Sampling systems
QUA	Sampling systems for feedwater system (*LA*)
QUB	Sampling systems for steam system (*LB*)
QUC	Sampling systems for condensate system (*LC*)
QUD	Sampling systems for auxiliary steam generation systems (*QH*, *QL*)
QUE	Sampling systems for heating and cooling medium systems (*SB*, *QK*)
QUG	Sampling systems for demineralized water system (*GH*)
QUN	Sampling systems for district heating system (*N*)
QUP	Sampling systems for cooling water system (*P*)
QUS	Sampling systems for HVAC system (*SA*)
QUW	Fluid supply system for liquid waste (*GM* and similar)

S	**ANCILLARY SYSTEMS**
SA	Heating, ventilation, air-conditioning (HVAC) systems
SAC	Heating, ventilation, air-conditioning (HVAC) systems assigned to structures
	(free for use up to SAU)
SB	Space heating systems
SBA	Central heating plant
SBC	Space heating systems assigned to structures

KKS TAGING PROCEDURE:

	(free for use up to SBU)
SC	Compressed air supply system
SCA	Compressed air generation system
SCB	Compressed air distribution system
SCC	Stationary compressed air supplies (free for use up to SCU)
SCV	Lubricant supply system
SCX	Fluid supply system for control and protection equipment
SCY	Control and protection equipment
SG	Station fire protection systems
SGA	Fire water system
SGC	Spray deluge systems
SGE	Sprinkler systems
SGF	Foam fire-fighting systems
SGG	Tank roof, tank shell cooling systems
SGJ	CO_2 fire-fighting systems
SGK	Halon fire-fighting systems
SGL	Powder fire-fighting systems
SGV	Lubricant supply system
SGX	Fluid supply system for control and protection equipment
SGY	Control and protection equipment
SM	Cranes, stationary hoists and conveying appliances
SMA	Central equipment
SMC	Cranes, stationary hoists and conveying appliances assigned to structures
	(free for use up to SMU)

KKS TAGING PROCEDURE:

SN	Elevators
SNC	Elevators assigned to structures
	(free for use up to SNU)
ST	Workshop, stores, laboratory equipment and staff amenities
STA	Workshop equipment and stores
STC	Maintenance areas
STE	Stores and filling station equipment
STG	Laboratory equipment
STP	Staff amenities

U	**STRUCTURE AND BUILDING FOR POWER PLANTS**
UA	Structures for grid and distribution systems
UAA	Switchyard structure
UAB	Gird systems switchgear building
UAC	Gird systems control building
UAE	Structure for pneumatic control system
UAH	Structure for supporting HV-line
UAW	Civil works for earthing/grounding outside buildings
UAX	Special structure (plant-specific)
UAY	Bridge structure
UAZ	HV cable duct / trench
UB	Structures for power transmission and auxiliary power supply
UBA	Switchgear building / Found of Power Control Centers, CENTRAL ELECTRICAL
UBC	Structure for offsite system transformers

KKS TAGING PROCEDURE:

UBD	Structure for low-voltage auxiliary power transformers
UBE	Structure for Unit – Auxiliary Transformer
UBF	Structure for Generator Transformer
UBG	Structure for start-up transformers
UBH	Structure for oil collecting pits
UBJ	Structure for transformer tracks
UBK	Transformer assembly building
UBL	Structure for busbars
UBM	Structure for transformer cooling systems
UBN	Structure for emergency power generating set
UBQ	Structure for emergency power generator fuel supply system
UBX	Structure for Generator Breaker
UBY	Piping and Cable Bridge / Sleeper Ways, CENTRAL ELECTRICAL
UBZ	Boiler Ducting Structure
UC	Structures for instrumentation and control
UCA	Control Room Block
UCB	Central control building
UCL	Structure for measuring equipment (e.g. metering skid)
UCP	Circulating water pump control building
UCX	Special structure (plant-specific)
UCY	Bridge structure
UCZ	Trenches/ducting structures
UE	Foundation / Structure for coal supply and residues disposal
UEA	Foundation / Concrete Structures / buildings for unloading of solid fuels (coal)

KKS TAGING PROCEDURE:

UEB	Structures for storage of solid fuels
UED	Structures for transport of solid fuels
UEE	Structures for treatment of solid fuels
UEF	Inside site fence: Foundation / Concrete Structures for transfer (e.g. Transfer and junction tower)
UEG	Structures for conversion of solid fuels
UEH	Foundation / Structure for Fuel Oil unloading station
UEJ	Foundation / Structures for storage of liquid fuels
UEK	Bundwall for Storage of liquid fuels
UEL	Foundation / Buildings / Structure of Transfer Pump station and boiler fuel oil pump station
UEM	Structure for treatment and handling of liquid fuels
UER	Structure for forwarding of gaseous fuels
UET	Structure for ash storage
UEU	Structure for ash transport
UEV	Ash pond, outside power plant
UEW	Structure for combustion residues handling
UEX	Special structures (plant-specific)
UEY	Bridge structure
UEZ	Trenches/ducting structures
UG	Structures for water supply and disposal
UGA	Structures for raw water (city water, demin.) supply system (incl. storage)
UGB	Chlorination building
UGC	Foundation for Demineralized Water Tank

KKS TAGING PROCEDURE:

UGD	Building Structure for Water Treatment Plant
UGE	Structures for neutralization system
UGF	Structures for fire water supply
UGG	Structures for drinking water supply
UGH	Structures for rainwater
UGJ	Building / Structure for make-up water treatment
UGK	Flocculant mixing chamber
UGL	Flocculant structure, flocculator
UGM	Structures for siphon basin
UGN	Treated water basin
UGP	Sludge thickener
UGQ	Sludge dewatering building
UGR	Sludge storage structure
UGS	Shaft structure (shaft)
UGT	Chlorination tank
UGU	Structure for effluent disposal (Monitoring basin)
UGV	Structure for sewerage Treatment plant
UGW	Structure for seawater desalination
UGX	Structure for Water Pre-treatment
UGY	Piping and cable bridge (e.g. between *UG. * and *UM. *)
UGZ	Piping and cable duct (e.g. between *UG. * and *UM. *)
UH	Structures for conventional heat generation
UHA	Boiler house (steam generator enclosure, steam generator building)
UHB	Auxiliary boiler

KKS TAGING PROCEDURE:

UHF	Bunker bay
UHL	Structure for boiler compressed air supply
UHN	Flue Gas Stack
UHQ	Structures for flue gas filtering system
UHU	Structures for flue gas reheating system
UHV	Structures for combustion air circulation (e.g. for forced draft fan)
UHW	Foundation for blow-down tank
UHX	Special structures (plant-specific)
UHY	Bridge structure
UHZ	Ducting structures for piping or / and cabling (inside of boiler island)
UL	Structures for steam-, water-, gas cycles
ULA	Structures for feedwater system
ULB	Structures for steam systems
ULC	Structures for condensate systems
ULD	Structures for condensate polishing plant
ULF	Structures for common installations of steam-water cycle
ULX	Special structures (plant-specific)
ULY	Bridge structure
ULZ	Ducting structures
UM	Structures for main machine sets
UMA	Steam turbine building
UMB	Gas turbine building
UMC	Gas and steam turbine building
UMD	Gas and steam turbine building with WHRB and auxiliary building

KKS TAGING PROCEDURE:

UMX	Special structures (plant-specific)
UMY	Piping and cable bridge structure
UMZ	Ducting structures
UP	Structures for circulating (cooling) water systems
UPA	Cooling water intake culvert
UPB	Service (secondary cooling) water intake culvert
UPC	Cooling water intake structures
UPD	Service (secondary cooling) water intake structures
UPH	Water treatment building
UPX	Special structures (plant-specific)
UPY	Piping and Cable Bridge / Sleeper Ways for common systems to circulating water system
UPZ	Ducting structures
UQ	Structures for auxiliary systems
UQA	Circulating water pump building
UQN	Circulating (cooling) water outfall culvert
UQP	Service (secondary cooling) water outfall culvert
UQE	Structures for general compressed & carrier air and control air supply
UQQ	Circulating (cooling) water outfall structure
UQS	Circulating (cooling) water discharge culvert
UQU	Structures for sampling system
UQX	Special structures (plant-specific)
UQY	Bridge structures
UQZ	Ducting structures

KKS TAGING PROCEDURE:

US	Structures for ancillary systems
USA	Foundation / Structures for heating, ventilation, air conditioning (HVAC) systems
USB	Structures for space heating systems
USC	Structures for stationary compressed air supply system
USK	Structures for foam station
UST	Workshop and storage Building
USV	Laboratory building
USX	Special structures (plant-specific)
USY	Piping and Cable Bridge / Sleeper Ways for fire fighting systems
USZ	Ducting structures
UT	Structures for auxiliary systems
UTH	Auxiliary steam generator (e.g. aux. Boiler)
UTX	Special structures (plant-specific)
UTY	Bridge structures
UTZ	Ducting structures
UY	General service structures
UYA	Office and staff amenities building
UYB	Staff amenities building
UYC	Administration building / Service Building (incorporating / considering output for Central Control / Computer Room according separate definition “part UTC”)
UYD	Canteen
UYE	Gate house
UYF	Security gate house
UYG	Information center

KKS TAGING PROCEDURE:

UYH	Training facilities
UYJ	First aid station
UYN	Railway engine shed
UYP	Fire station
UYQ	Garage
UYR	Automobile workshop
UYS	Filling station
UYX	Colony
UYY	Bridge structures
UYZ	Ducting structures
UZ	Structures for transport, traffic, fencing, gardens and other purposes.
UZA	Works roadways, paths, including associated structures
UZC	Yards
UZD	Parking areas
UZE	Railway structures
UZF	Lifting gear structures
UZJ	Fencing and gates (e.g. boundary wall)
USK	Gardens, including structures
UZL	Noise abatement structures
UZM	Protective structures against external impact
UZN	Structure for flood protection
UZP	Structure for bank/shoreline stabilization
UZQ	Structure for river regulation
UZS	Breakwaters

KKS TAGING PROCEDURE:

UZT	PVC conduits for cable pulling
UZU	Site security structure
UZW	Residential buildings, residential area
UZX	Monsoon drains
UZY	Bridge structure
UZZ	Ducting structure

X	**HEAVY MACHINERY (NOT MAIN MACHINE SETS)**
XJ	Diesel engine plant
XJA	Engine
XJB	Turbocharger, blower
XJG	Liquid cooling system
XJH	Air intercooling system
XJK	Transmission gear between prime mover and driven machine
XJN	Fuel systems
XJP	Start-up unit, (incl. flywheel)
XJQ	Air intake system
XJR	Exhaust gas system
XJV	Lubricant system
XJW	Sealing fluid supply system
XJX	Fluid supply system for control and protection equipment
XJY	Control and protection equipment
XK	Generator Plant
XKA	Generator, complete, including stator, rotor and all integral cooling equipment

KKS TAGING PROCEDURE:

XKB	Generator exciter set, including set with electrical braking system
XKD	Bearings
XKQ	Exhaust gas system
XP	Common installations for heavy machinery
XPA	Foundations
XPB	Sheathing
XPG	Frame, support structure
XPR	Forced cooling system
XPS	Drying and layup system

Z	**WORKSHOP AND OFFICE EQUIPMENT**
ZA	Workshop and office equipment (free for use up to ZZ)

4.0 KKS EQUIPMENT UNIT CODE

A	**Mechanical equipment**
AA	Valves, dampers, etc., incl. actuators, also manual; Rupture disk equipment
AB	Isolating elements, airlocks
AC	Heat exchangers, heat transfer surfaces
AE	Turning, driving, lifting and slewing gear (also manipulators)
AF	Continuous conveyors, feeders (escalators)
AG	Generator units
AH	Heating, cooling and air conditioning units
AJ	Size reduction equipment, only as part of process

KKS TAGING PROCEDURE:

AK	Compacting and packaging equipment, only as part of process
AM	Mixers, agitators
AN	Compressor units, fans
AP	Pump units
AS	Adjusting and tensioning equipment for non-electrical variables (to be applied only, if the actuator forms itself a constructive unit with another equipment unit)
AT	Cleaning drying, filtering and separating equipment, excl. *BT*
AU	Braking, gearbox, coupling equipment, non-electrical converters
AV	Combustion equipment
AW	Stationary tooling, treatment equipment
AX	Test and monitoring equipment for plant maintenance

B	**Mechanical equipment**
BB	Storage equipment (tanks)
BE	Shafts (for erection and maintenance only)
BF	Foundations
BN	Jet pumps, ejectors, injectors
BP	Flow restrictiors, limiters, orifices (not metering orifices)
BQ	Hangers, supports, racks, piping penetrations
BR	Piping, ductwork, chutes
BS	Silencers
BT	Flue gas catalytic converter modules
BU	Insulation, sheathing

KKS TAGING PROCEDURE:

C	**Direct measuring circuits**
CD	Density
CE	Electrical variables (e.g. current, voltage, power, electric, frequency)
CF	Flow, rate
CG	Distance, length, position, direction of rotation
CH	Manual input as manually operated sensor (e.g. fire detector)
CK	Time
CL	Level (also for dividing line)
CM	Moisture, humidity
CP	Pressure
CQ	Quality variables (analysis, material properties), other than *CD*, *CM*,*CV*
CS	Velocity, speed, frequency (mechanical), acceleration
CT	Temperature
CU	Combined and other variables
CV	Viscosity
CW	Weight, mass
CY	Vibration, expansion

D	**Closed loop control circuits**
DD	Density
DE	Electrical variables (e.g. current, voltage, power, electric, frequency)
DF	Flow, rate
DG	Distance, length, position, direction of rotation

KKS TAGING PROCEDURE:

DK	Time
DL	Level (also for dividing line)
DM	Moisture, humidity
DP	Pressure
DQ	Quality variables (analysis, material properties), other than *DD*, *DM*,*DV*
DS	Velocity, speed, frequency (mechanical), acceleration
DT	Temperature
DU	Combined and other variables
DV	Viscosity
DW	Weight, mass
DY	Vibration, expansion

E	**Analog and binary signal conditioning**
EA	Unit control
EB	Group control
EC	Subgroup control
EE	Subloop control, equipment unit changeover
EG	Alarm logics
EH	Hard-wired alarm annunciation system
EJ	Visualization of operation and monitoring displays
EK	Alarm logics
EM	Access control
EN	State-display computer, criterion display
EP	Supervisory computer

KKS TAGING PROCEDURE:

EQ	Internal automation (signal processing)
ES	Internal automation (signal conditioning)
EU	Combined analog and binary signal conditioning
EV	Signal transmission, bus coupling
EY	Protective logics, priority, non-equipment-unit-related
EZ	Super-ordinate equipment unit protection

F	**Indirect measuring circuits**
FD	Density
FE	Electrical variables (e.g. electr. Efficiency, power)
FF	Flow, rate
FG	Distance, length, position, direction of rotation
FK	Time
FL	Level (also for dividing line)
FM	Moisture, humidity
FP	Pressure
FQ	Quality variables (analysis, material properties), other than *DD*, *DM*,*DV*
FS	Velocity, speed, frequency (mechanical), acceleration
FT	Temperature
FU	Combined and other variables
FV	Viscosity
FW	Weight, mass
FY	Vibration, expansion

KKS TAGING PROCEDURE:

G	**Electrical equipment**
GA	Junction boxes and cable
GB	Cable/busbar penetrations
GH	Electrical and instrumentation and control installation units identified as per process system (e.g. cubicles, boxes)
GK	Information display and operator control equipment for process computers and automation systems
GM	Junction boxes for light-current systems of national telecommunication services
GP	Subdistribution /junction boxes for lighting
GQ	Subdistribution /junction boxes for power sockets
GR	DC generating equipment, batteries
GS	Switchgear equipment if not identified under process equipment
GT	Transformer equipment
GU	Converter equipment
GV	Structure-related earthing and lightning protection equipment, surge arrestors
GW	Cabinet power supply equipment
GX	Actuating equipment for electrical variables
GY	Junction boxes for light-current systems (not of national telecommunication services)
GZ	Hangers, supports and racks for electrical and instrumentation and control equipment

H	**Subassemblies of main and heavy machinery (only to be used in conjunction with *M*=Main machine sets and *X*=Heavy machinery)**
HA	Machine stationary assembly
HB	Machine rotating assembly

KKS TAGING PROCEDURE:

HD Bearing assembly

5.0 KKS COMPONENT CODE

This document is intended to be an identification aid only

If contains no binding information about scope of supply

- Electrical components

-A Assemblies and subassemlies

-B Transducers for non-electrical to electrical variables and vice-versa

-C Capacitors

-D Binary elements, delay devices, memory devices

-E Special components

-F Protective devices

-G Generators, power supplies

-H Signaling devices

-K Relays, contactors

-L Inductors

-M Motors

-N Amplifiers, controllers

-P Measuring instruments, testing equipment

-Q Power switchgear

-R Resistors

-S Switches, selectors

-T Transformers

-U Modulators, convertors from electrical to other electrical variables

KKS TAGING PROCEDURE:

-V	Tubes, semiconductors
-W	Transmission paths, waveguides, aerials
-X	Terminals, plugs, sockets
-Y	Electrical positioners, e.g. solenoids (not motors)
-Z	Terminators, balancing equipment, filters, limiters, cable terminations

K Mechanical components

KA	Gate valves, globe valves, dampers, cocks, rupture disks, orifices
KB	Gates, doors, dam boards
KC	Heat exchangers, coolers
KD	Vessels/tanks, pools, surge tanks (fluid systems)
KE	Turning, driving, lifting and slewing gear
KF	Continuous conveyors, feeders
KJ	Size reduction machines
KK	Compacting, packaging machines
KM	Mixers, agitators
KN	Compressors, blowers, fans
KP	Pumps
KT	Cleaning machines, dryers, separators, filters
KV	Burners, grates
KW	Stationary tooling and treatment machines for maintenance

M	**Mechanical components**
MB	Brakes

KKS TAGING PROCEDURE:

MF	Foundations
MG	Gearboxes
MK	Clutches, couplings
MM	Engines, not electrical
MR	Piping components, ductwork components
MS	Positioners, not electrical
MT	Turbines
MU	Transmission gear, non electrical, converters and boosters other than couplings and gearboxes

KKS TAGING PROCEDURE:

TABLE 3-3 Equipment Unit Key

A	**MECHANICAL EQUIPMENT**
B	**MECHANICAL EQUIPMENT**
C	**DIRECT MEASURING CIRCUITS**
D	**CLOSED LOOP CONTROL CIRCUITS**
E	**ANALOG AND BINARY SIGNAL CONDITIONING**
F	**INDIRECT MEASURING CIRCUITS**
G	**ELECTRICAL EQUIPMENT**

KKS TAGING PROCEDURE:

TABLE 3-3 Equipment Unit Key

A	**MECHANICAL EQUIPMENT**
AA	VALVES, DAMPERS, ETC. INCL. ACTUATORS; AISO MANUAL
AB	ISOLATING ELEMENTS, AIR LOCKS
AC	HEAT EXCHANGERS
AE	TURNING, DRIVING, LIFTING AND SLEWING GEAR (INCL. MANIPULATORS)
AF	CONTINUOUS CONVEYOR, FEEDERS (ESCALATORS)
AG	GENERATOR UNITS
AH	HEATING, COOLING UNITS
AJ	SIZE REDUCTION EQUIPMENT
AK	COMPACTING, PACKAGING EQUIPMENT
AM	MIXERS, AGITATORS
AN	COMPRESSOR UNITS, FANS, BLOWERS
AP	PUMP UNITS
AS	ADJUSTING AND TENSIONING EQUIPMENT
AT	CLEANING, DRYING, FILTERING, SEPARATION EQUIPMENT
AU	CONVERTORS (NON ELETRICAL), E.G. SERVOMOTOR
AV	COMBUSTION EQUIPMENT, E.G. GRATES
AW	STATIONARY TOOLING, TREATMENT EQUIPMENT
AX	TEST AND MONITORING EQUIPMENT
AZ	SPECIAL EQUIPMENT UNITS

KKS TAGING PROCEDURE:

B	**MECHANICAL EQUIPMENT**
BB	VESSELS, STORAGE TANKS
BE	SHAFTS (FOR ERECTION AND MAINTENANCE ONLY)
BF	FOUNDATIONS
BG	BOILER HEATING SURFACES
BN	JET PUMPS, EJECTORS, INJECTORS
BP	FLOW RESTRICTORS AND LIMITERS (INCL. RUPTURE DISCS), ORIFICES (NOT METERING ORIFICES)
BQ	HANGERS, SUPPORTS, FRAMES, RACKS, PIPE PENETRATIONS
BR	PIPINGS, DUCTWORK, CHUTES
BS	SILENCERS
BT	CATALITIC CONVERTER MODULES
BU	INSULATION, SHEATING
BY	MECHANICALLY OPERATED CONTROLLERS (CONTROL UNITS)
BZ	SPECIAL EQUIPMENT UNITS

C	**DIRECT MEASURING CIRCUITS**
CD	DENSITY
CE	ELECTRICAL VARIABLES
CF	FLOW, RATE
CG	DISTANCE, LENGTH, POSITION
CK	TIME
CL	LEVEL

KKS TAGING PROCEDURE:

CM	MOISTURE, HUMIDITY
CP	PRESSURE
CQ	QUALITY VARIABLES (ANALYSIS, MATERIAL PROPERTIES)
CR	RADIATION VARIABLES
CS	VELOCITY, SPEED, FREQUENCY
CT	TEMPERATURE
CU	COMBINED VARIABLES
CV	VISCOSITY
CW	WEIGHT, MASS
CX	NEUTRON FLUX (REACTOR POWER)
CY	VIBRATION, EXPANSION

D	**CLOSED LOOP CONTROL CIRCUITS**
DD	DENSITY
DE	ELECTRICAL VARIABLES
DF	FLOW, RATE
DG	DISTANCE, LENGTH, POSITION
DK	TIME
DL	LEVEL
DM	MOISTURE, HUMIDITY
DP	PRESSURE
DQ	QUALITY VARIABLES (ANALYSIS, MATERIAL PROPERTIES)
DR	RADIATION VARIABLES
DS	VELOCITY, SPEED, FREQUENCY

KKS TAGING PROCEDURE:

DT	TEMPERATURE
DU	COMBINED VARIABLES
DV	VISCOSITY
DW	WEIGHT, MASS
DX	NEUTRON FLUX (REACTOR POWER)
DY	VIBRATION, EXPANSION

E	**ANALOG AND BINARY SIGNAL CONDITIONING**
EA	OPEN-LOOP CONTROL
EB	OPEN-LOOP CONTROL
EC	OPEN-LOOP CONTROL
ED	OPEN-LOOP CONTROL
EE	OPEN-LOOP CONTROL
EG	ALARM, ANNUNCIATION
EH	ALARM, ANNUNCIATION
EJ	ALARM, ANNUNCIATION
EK	ALARM, ANNUNCIATION
EM	PROCESS COMPUTER
EN	PROCESS COMPUTER
EP	PROCESS COMPUTER
EQ	PROCESS COMPUTER
ER	REACTOR PROTECTION
EU	COMBINED ANALOG AND BINARY SIGNAL CONDITIONING
EW	PROTECTION

KKS TAGING PROCEDURE:

EX	PROTECTION
EY	PROTECTION
EZ	PROTECTION

F	**INDIRECT MEASURING CIRCUITS**
FD	DENSITY
FE	ELECTRICAL VARIABLES
FF	FLOW, RATE
FG	DISTANCE, LENGTH, POSITION
FK	TIME
FL	LEVEL
FM	MOISTURE, HUMIDITY
FP	PRESSURE
FQ	QUALITY VARIABLES (ANALYSIS, MATERIAL PROPERTIES)
FR	RADIATION VARIABLES
FS	VELOCITY, SPEED, FREQUENCY
FT	TEMPERATURE
FU	COMBINED VARIABLES
FV	VISCOSITY
FW	WEIGHT, MASS
FX	NEUTRON FLUX (REACTOR POWER)
FY	VIBRATION, EXPANSION

KKS TAGING PROCEDURE:

G	**ELECTRICAL EQUIPMENT**
GA	JUNCTION BOXES FOR ANALOG MEASURED DATA
GB	JUNCTION BOXES FOR BINARY SIGNALS
GC	JUNCTION BOXES FOR ANALOG SAFETY I&C (SILT) MEASURED DATA
GD	JUNCTION BOXES FOR POWER CABLES > 1 KV
GE	JUNCTION BOXES FOR POWER CABLES < 1 KV
GF	JUNCTION BOXES FOR OPERATIONAL I&C (BELT) MEASURED DATA
GG	JUNCTION BOXES FOR THERMOCOUPLES
GH	ELECTRICAL AND INSTRUMENTATION AND CONTROL INSTALLATION UNITS (E.G.CUBICLES, BOXES)
GK	INFORMATION DISPLAY AND OPERATOR CONTROL EQUIPMENT FOR PROCESS COMPUTERS AND AUTOMATION SYSTEMS (KEYBOARDS, MONITORS, PRINTERS)
GM	JUNCTION BOXES FOR LIGHT CURRENT SYSTEMS OF NATIONAL TELECOMMUNICATIONS SERVICES
GN	NETWORKING EQUIPMENT (BUS COUPLERS AND OPTIC TRANSCEIVERS, ETC.)
GP	SUBDISTRIBUTION/JUNCTION BOXES FOR LIGHTING
GQ	SUBDISTRIBUTION/JUNCTION BOXES FOR POWER SOCKETS
GR	DC GENERATING EQUIPMENT (BATTERIES)
GS	SWITCHGEAR EQUIPMENT (IF NOT INDENTIFIED UNDER PROCESS EQUIPMENT)
GT	TRANSFORMER EQUIPMENT
GU	CONVERTOR EQUIPMENT

KKS TAGING PROCEDURE:

GV	STRUCTRE-RELATED EARTHING AND LIGHTNING PROTECTION EQUIPMENT, SURGE ARRESTORS
GW	CABINET POWER SUPPLY EQUIPMENT
GX	ACTUATING EQUIPMENT FOR ELECTRICAL VARIABLES
GY	JUNCTION BOXES FOR LIGHT CURRENT SYSTEMS (NOT OF NATIONAL TELECOMMUNICATIONS SERVICES)
GZ	HANGERS, SUPPORTS AND RACKS FOR ELECTRICAL AND INSTRUMENTION AND CONTROL EQUIPMENT

KKS TAGING PROCEDURE:

TABLE 3-4 Component Key

-	**Electrical Components**
K	**Mechanical Components**
M	**Mechanical Components**
Q	**Instrumentation and Control Components (non-electrical)**
X	**Signal Origins**
Y	**Signal Applications**

-	**Electrical Components**
-A	Assemblies and subassemblies
-B	Transducers for non-electrical to electrical variables and vice-versa
-C	Capacitors
-D	Binary elements, delay devices, memory devices
-E	Special components
-F	Protective devices
-G	Generators, power supplies
-H	Signaling devices
-K	Relays, contactors
-L	Inductors
-M	Motors
-N	Amplifiers, controllers

KKS TAGING PROCEDURE:

-P	Measuring instruments, testing equipment
-Q	Power switchgear
-R	Resistors
-S	Switches, selectors
-T	Transformers
-U	Modulators, convertors from electrical to other electrical variables
-V	Tubes, semiconductors
-W	Transmission paths, waveguides, aerials
-X	Terminals, plugs, sockets
-Y	Electrical positioner, e.g. solenoids (not motors)
-Z	Terminations, balancing equipment, filters, limiters, cable terminations, equalizers, hybrid transformers

K	**Mechanical Components**
KA	Gate valves, glove valves, dampers, cocks, rupture disks, orifices
KB	Gates, doors, damboards
KC	Heat exchangers, coolers
KD	Vessels/ tanks, pools, surge tanks (fluid systems)
KE	Turning, driving, lifting and slewing gear
KF	Continuous conveyors, feeders
KJ	Size reduction machines
KK	Compacting, packaging machines
KM	Mixers, agitators

KKS TAGING PROCEDURE:

KN	Compressors, blowers, fans
KP	Pumps
KT	Cleaning machines, dryers, separators, filters
KV	Burners, grates
KW	Stationary tooling and treatment machines for maintenance

M	**Mechanical Components**
MB	Brakes
MF	Foundations
MG	Gearboxes
MK	Clutches, couplings
MM	Engines, not electrical
MR	Piping components, ductwork components
MS	Positioners, not electrical
MT	Turbines
MU	Transmission gear, non electrical, converters and boosters other than couplings and gearboxes

Q	**Instrumentation and Control Components (non-electrical)**
QA	Enclosures (for I & C component protection only)
QB	Sensors if not structurally integral with “QP”, metering orifices
QH	Signaling devices

KKS TAGING PROCEDURE:

QN	Controllers, flybolt governor
QP	Measuring instruments, testing equipment
QR	Instrument piping
QS	Condensation chambers (datum reservoir) in measuring circuits
QT	Thermowells and pockets for protection of sensors

X	**Signal Origins**
XA	Functional group control / subgroup control
XB	Control interfaces
XC	Closed loop control
XD	Reactor protection, signals in binary signal processing section
XE	Reactor protection, signals in analog and binary sections
XF	Priority control
XG	Binary process signals conditioned by binary signal conditioning modules
XH	Binary limit signals derived from analog process signals
XK	Equipment unit / component protection
XL	Control room and control stations, signals not assigned to specific control systems (e.g. control interface tiles)
XM	Alarm signals
XN	Status display computer / criterion display
XP	Supervisory computer (process computer)
XQ	Analog signals

KKS TAGING PROCEDURE:

XR	Priority control and limitation function (control other than “XC” and “XT”, “YC” and “YT”)
XS	Functional group control step signals
XT	Turbine generator I & C, binary signals
XU	Non-floating dynamic alarm signals
XW	Hardwired alarm annunciation system

Y	**Signal Applications**
YA	Functional group control / subgroup control
YB	Control interfaces
YC	Closed loop control
YD	Reactor protection, signals in binary signal processing section
YE	Reactor protection, signals in analog and binary sections
YF	Priority control
YJ	Signal from non-standard areas (e.g. black box, dedicated I & C)
YL	Control room and control stations, signals not assigned to specific control systems (e.g. control interface tiles)
YN	Status display computer / criterion display
YP	Supervisory computer (process computer)
YQ	Analog signals
YR	Priority control and limitation function (control other than “XC” and “XT”, “YC” and “YT”)
YT	Turbine generator I & C, binary signals

KKS TAGING PROCEDURE:

YV Signal gating (protective logic, alarm logic, etc)

YW Hardwired alarm annunciation system

KKS TAGING PROCEDURE:

16. KKS CODE APPLICATION FOR LEVEL 3

A. MCC for PUMPS

1) STATUS FEED BACK

-RUNNING	nnaaannaannn**XB01**
-STOPED	nnaaannaannn**XB02**
-DISTURBED(FAULT)	nnaaannaannn**XB48**

2) COMMAND

-START / ON (or Start/Stop, On/Off)	nnaaannaannn**YB01**
-STOP / OFF	nnaaannaannn**YB02**
LCS(LOCAL SELECT)	nnaaannaannnYB05

B. SWICHGEAR for Pump

1) STATUS FEED BACK

-RUNNING	nnaaannaannnXB01
-STOPPED	nnaaannaannnXB02
- ELECTRICAL FAULT	nnaaannaannnXB48
- TEST POSITION	nnaaannaannnXB82
- SWITCHGEAR AVAILABLE	nnaaannaannnXB03
- MASTER TRIP RELAY OPERATED	nnaaannaannnXB04
- LOCAL EMERGENCY PB OPERATED	nnaaannaannnXB42
- TRIP ON OVERLOAD	nnaaannaannnXB47
-CURRENT	nnaaannaannnXQ11

2) COMMAND

-START/ON	nnaaannaannnYB01
-STOP/OFF	nnaaannaannnYB02

KKS TAGING PROCEDURE:

C.MOTOR OPERATED VALVE (ON/OFF)

1) STATUS FEED BACK

OPENED	nnaaannaannn**XB01**
CLOSED	nnaaannaannn**XB02**
REMOTE SELECTED	nnaaannaannn**XB42**
FAULT(DISTURBED)	nnaaannaannn**XB48**
POSITION TRANSMITTER(INCHING MOV only)	nnaaannaannn**XQ12**

2) COMMAND TO DRIVE(MOV)

-OPEN COMMAND	nnaaannaannn**YB01**
-CLOSE COMMAND	nnaaannaannn**YB02**

D.MOV (MODULATING)

1) STATUS FEED BACK

-POSITION TRANSMITTER	nnaaannaannn**XQ12**
-REMOTE SELECTED	nnaaannaannn**XB02**
-FAULT(DISTURBED)	nnaaannaannn**XB48**

2) COMMAND TO DRIVE(MOV)

-ANALOG OUTPUT COMMAND	nnaaannaannn**YQ12**

E. PNEUMATIC CONTROL VALVE AND DAMPER (MODULATING)

1) STATUS FEED BACK

-POSITION TRANSMITTER	nnaaannaannn**XQ12**

2) COMMAND TO DRIVE

-ANALOG OUTPUT COMMAND	nnaaannaannn**YQ12**

F.PNEUMATIC SHUT-OFF VALVE (SINGLE SOLENOID)

1) STATUS FEED BACK

-OPEN POSITION	nnaaannaannn**XB01**
-CLOSE POSITIION	nnaaannaannn**XB02**

2) COMMAND TO DRIVE

-ENERZIGE/DE-ENERZIGE	nnaaannaannn**YB01**

KKS TAGING PROCEDURE:

G.PNEUMATIC SHUT-OFF VALVE (DUAL SOLENOID)

1) STATUS FEED BACK

- OPENED STATUS	nnaaannaannn**XG01**
-. CLOSED STATUS	nnaaannaannn**XG02**

2) COMMAND TO DRIVE

-OPEN COMMAND	nnaaannaannn**YB01**
-CLOSE COMMAND	nnaaannaannn**YB02**

H.MANUAL VALVE.OTHERS POSITIONS

1) STATUS FEED BACK

-POSITION TRANSMITTER	nnaaannaannn**XQ12**
-POSITION OPEN STATUS	nnaaannaannn**XG01**
-POSITION CLOSE STATUS	nnaaannaannn**XG02**

I. HIGH ENERGY IGNITOR SPARK

-ENERZIGE/DE-ENERZIGE	nnaaannaannn**YB01**

J.FIELD INSTRUMENTS

1)TRANSMITTERS

-TRANSMITTERS	nnaaannaannn**XQ01**
-Other analogue signal from the same instrument	nnaaannaannn**XQ02~09**

2)SWITCHES

1.SPDT(FROM PROCESS ELEMENT)

-SWITCH HIGH(NO)	nnaaannaannn**XG01**
-SWITCH LOW(NO)	nnaaannaannn**XG02**
-SWITCH HIGH-HIGH(NO)	nnaaannaannn**XG03**
-SWITCH LOW-LOW(NO)	nnaaannaannn**XG04**
-SWITCH HIGH(NC)	nnaaannaannn**XG51**
-SWITCH LOW(NC)	nnaaannaannn**XG52**
-SWITCH LOW-LOW(NC)	nnaaannaannn**XG54**
-SWITCH HIGH-HIGH(NC)	nnaaannaannn**XG53**