





P&ID SYMBOLOLOGY AND GENERAL NOTES

SHEET	DESCRIPTION	REV	DATE
0	P&ID SYMBOLOLOGY AND GENERAL NOTES	03	31/03/2023
1	P&ID SYMBOLOLOGY AND GENERAL NOTES	03	31/03/2023
2	P&ID SYMBOLOLOGY AND GENERAL NOTES	03	31/03/2023
3	P&ID SYMBOLOLOGY AND GENERAL NOTES	03	31/03/2023

PROPRIETARY INFORMATION

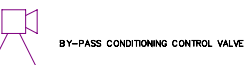
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CONTAINS INFORMATION FOR THE DESIGN OF STRUCTURES:
SYSTEM OR COMPONENTS YES ☒ NO ☐
VERIFICATION: N/A ☐ SLIP ☒ VERIFIER L1 ☐ L2 ☐

OWNER			
OWNER'S ENGINEERING			
DESIGNER			
PROJECT Flémalle CCGT Project			
			
SIZE	SCALE	03 31/03/2023	03 31/03/2023
AD	01 24/11/2022	01 24/11/2022	01 24/11/2022
DRAWING NUMBER		DRAWING NAME	
EBL-26-YM_MDD-EAI-00300		P&ID SYMBOLOLOGY AND GENERAL NOTES	
DESIGNER DOCUMENT		222-20-01-M-00300	
Rev:		03	

VALVE SYMBOLS

	VALVE, GENERAL
	CHECK VALVE, GENERAL
	ANGLE VALVE, GENERAL
	SAFETY VALVE, GENERAL
	THREE WAY VALVE
	FOUR WAY VALVE
	PRESSURE REDUCING VALVE
	GATE: OPEN IN NORMAL OPERATION
	GATE: CLOSED IN NORMAL OPERATION
	GLOBE: OPEN IN NORMAL OPERATION
	GLOBE: CLOSED IN NORMAL OPERATION
	GLOBE "Y" PATTERN VALVE
	PLUG OR BALL: OPEN IN NORMAL OPERATION
	PLUG OR BALL: CLOSED IN NORMAL OPERATION
	DIAPHRAGM TYPE: OPEN IN NORMAL OPERATION
	DIAPHRAGM TYPE: CLOSED IN NORMAL OPERATION
	NEEDLE: OPEN IN NORMAL OPERATION
	NEEDLE: CLOSED IN NORMAL OPERATION
	BUTTERFLY: OPEN IN NORMAL OPERATION
	BUTTERFLY: CLOSED IN NORMAL OPERATION
	SWING CHECK VALVE
	TILTING DISK CHECK VALVE
	PISTON LIFT CHECK VALVE
	"Y" PATTERN PISTON LIFT CHECK VALVE
	BUTTERFLY CHECK VALVE
	BALL CHECK VALVE
	STOP-CHECK VALVE
	STOP-CHECK "Y" PATTERN VALVE
	VACUUM BREAKER VALVE
	ANGLE GLOBE VALVE
	ANGLE BALL VALVE
	SAFETY RELIEF ANGLE TYPE
	AUTOMATIC RECIRCULATION VALVE
	THREE WAY BALL VALVE
	FOUR WAY BALL VALVE
	PARALLEL SLIDE GATE: OPEN IN NORMAL OPERATION
	PARALLEL SLIDE GATE: CLOSE IN NORMAL OPERATION
	DOUBLE BLOCK&BLEED BALL: OPEN IN NORMAL OPERATION
	DOUBLE BLOCK&BLEED BALL: CLOSE IN NORMAL OPERATION
	BUTTERFLY VALVE WITH COUNTER WEIGHT: OPEN IN NORMAL OPERATION
	BUTTERFLY VALVE WITH COUNTER WEIGHT: CLOSE IN NORMAL OPERATION



VALVE OPERATOR TYPES

	MANUAL ACTUATOR
	ELECTRIC MOTOR OPERATED
	ELECTRIC MOTOR OPERATED WITH POSITION TRANSDUCER
	PNEUMATIC DIAPHRAGM OPERATED
	SOLENOID OPERATED
	PISTON OPERATED
	HYDRAULIC FLUID OPERATED
	OPERATION AGAINST FIXED SPRING
	FLOAT OPERATED
	ELECTRIC MOTOR ASSISTED OPERATED
	PISTON ASSISTED OPERATED
	SOLENOID ASSISTED OPERATED
	D.C. ELECTRIC MOTOR
	SELF REGULATING PRESSURE CONTROL
	SELF REGULATING TEMPERATURE CONTROL
	SELF REGULATING FLOW CONTROL
	SELF REGULATING LEVEL CONTROL
	SELF ACTUATED PRESSURE REDUCING VALVE
	FAIL OPEN
	FAIL CLOSE
	FAIL AS IT IS

ACCESORIES

	WITH VACUUM PACKING
	WITH GLAND SEAL CONNECTION
	WITH LEAK-OFF CONNECTION
	WITH CONNECTIONS TO CASING
	MECHANICALLY BLOCKED
	VALVE WITH INTERNAL BYPASS VALVE
	POST INDICATOR VALVE
	WITH CONTROL CHARACTERISTICS
	CHAIN OPERATED VALVE
	REDUCTION GEAR OPERATED VALVE
	VALVE WITH LIMIT SWITCH

IN GENERAL, SEVERAL ACCESORIES MAY BE APPLIED IN THE SAME VALVE.

NOTES

FA: FAIL AS IT IS
FO: FAIL OPEN
FC: FAIL CLOSE
LO: LOCKED OPEN
LC: LOCKED CLOSE
SO: SAFETY, LOCKED OPEN
SC: SAFETY, LOCKED CLOSED
NO: NORMALLY OPEN
NC: NORMALLY CLOSED

EQUIPMENT SYMBOLS

	STEAM GENERATOR		SEPARATOR, GENERAL
	CROSSING FLUID FLOWS SURFACE HEAT EXCHANGER		ELECTRO-STATIC SEPARATOR
	ELECTRIC HEATER		CENTRIFUGAL SEPARATOR
	NO CROSSING FLUID FLOW HEAT EXCHANGER		ELECTROMAGNETIC SEPARATOR
	MIXING FLUID FLOW HEAT EXCHANGER		SCREEN FILTER GENERAL
	PUMP GENERAL		WATER AND GAS-OIL SEPARATOR
	CENTRIFUGAL PUMP		SEPARATOR, WET SCRUBBER
	PISTON PUMP		LIQUID FILTER, GENERAL
	ROTATORY PISTON PUMP		FIXED BED FILTER, GENERAL
	DIAPHRAGM PUMP		MIXED BED FILTER
	GEAR PUMP		ION EXCHANGE FILTER
	POSITIVE ROTATORY SCREW PUMP		ACTIVATED CHARCOAL FILTER
	HELICOIDAL ROTOR PUMP (POSITIVE DISPLACEMENT PUMP)		CARTRIDGE FILTER
	COMPRESSOR, VACUUM PUMP, GENERAL		DUPLEX FILTER
	RECIPROCATING PISTON COMPRESSOR OR VACUUM PUMP		PULSATION DAMPER
	TURBO COMPRESSOR, BLOWER		HORIZONTAL TANK
	LIQUID RING COMPRESSOR		VERTICAL TANK
	FEEDER FOR SOLID MATERIAL		TANK
	SUBMERSIBLE PUMP		PLATE HEAT EXCHANGER
	PORTABLE PUMP		BALL DISTRIBUTOR
	PORTABLE PUMP (LUTZ TYPE)		VERTICAL PUMP
	SILENCER		CALIBRATION COLUMN
	CONDENSER		
	STEAM TURBINE		
	COUPLING, CONTINUOUSLY VARIABLE		
	POOL OR BASIN		
	SHELL & TUBE HEAT EXCHANGER		
	DOSING PUMP (POSITIVE DISPLACEMENT)		
	REVERSE OSMOSIS		
	COOLING TOWER		

MISCELLANEOUS SYMBOLS

	SLOPE (FOR PIPING)		GAS BOTTLE
	REDUCER, INCREASER		ELECTRICAL HEAT TRACING
	SCREW CONNECTION		DIELECTRIC JOINT
	HOSE CONNECTION		FLAME ARRESTER
	QUICK CONNECTION		DISCHARGE FUNNEL
	WELDED CAP		DRAINING BASIN
	SCREW CAP		DISCHARGE CHANNEL
	BLIND FLANGE		SPRAY NOZZLE
	ISOLATING FLANGE		MIXER
	FLANGE CONNECTION		MIXER
	RUPTURE DISC		THERMAL SLEEVE
	FLEXIBLE CONNECTION		DESUPERHEATING
	SPECTACLE FLANGE: OPEN IN NORMAL OPERATION		MIXING "T"
	SPECTACLE FLANGE: CLOSED IN NORMAL OPERATION		SAMPLING POINT
	ORIFICE RESTRICTION		ATMOSPHERIC VENT
	MULTIPLE RESTRICTION ORIFICE		"Y" TYPE STRAINER
	EXPANSION JOINT		"T" TYPE STRAINER
	FLOW GLASS		WITCH HAT STRAINER
	GAS AIR FILTER GENERAL		SAFETY SHOWER
	EYE WASH		SAFETY SHOWER & EYEWASH
	STEAM/AIR TRAP		DRAINS TRAY
	VENT		BALL INJECTOR
	SPECIAL BRANCH		BALL MONITOR
	VELOCITY DIFFUSER		

INSTRUMENT SYMBOLS

	LOCAL PROCESSING/MONITORING INSTRUMENT		ULTRASONIC FLOW METER
	CENTRAL CONTROL PANEL PROCESSING/MONITORING INSTRUMENT (DCS)		ROTAMETER
	LOCAL CONTROL PANEL PROCESSING/MONITORING INSTRUMENT (Secondary Control System)		CORIOLIS MASS FLOW METER
	FLOW ORIFICE		MAGNETIC FLOW METER
	FLOW NOZZLE		VORTEX FLOW METER
	VENTURI		
	POSITIVE DISPLACEMENT FLOW METER		
	TURBINE TYPE FLOW METER		
	PILOT TUBE		
	DIAPHRAGM SEAL		





FIRE PROTECTION SYMBOLS

	DELUGE VALVE		DRY PIPE SPRINKLER SYSTEM
	PREACTION VALVE		WET PIPE SPRINKLER SYSTEM
	ALARM CHECK VALVE		AUTOMATIC WATER SPRAY SYSTEM
	SPRINKLER		PREACTION SPRINKLERS SYSTEM
	FOAM CHAMBER		AUTOMATIC POWDER SYSTEM
	HYDRANT		AUTOMATIC CARBON DIOXIDE SYSTEM
	HYDRANT WITH MONITOR		AUTOMATIC FOAM WATER SYSTEM
	BLADDER TANK		MANUAL SPRINKLER SYSTEM
	HOSE STATION, WET STAND PIPE		MANUAL WATER SPRAY SYSTEM
	HOSE STATION, DRY STAND PIPE		MANUAL POWDER SYSTEM
	HOSE STATION, FOAM WATER		MANUAL CARBON DIOXIDE SYSTEM
	WATER SPRAY NOZZLE		MANUAL FOAM WATER SYSTEM
	WATER SPRAY NOZZLE (CLOSES TYPE)		PREACTION VALVE
	WATER SPRAY NOZZLE (CLOSED TYPE)		RETARD CHAMBER
	WATER SPRAY NOZZLE (OPEN TYPE)		WATER MOTOR ALARM
	FIRE NETWORK TRANSITION PIECE		

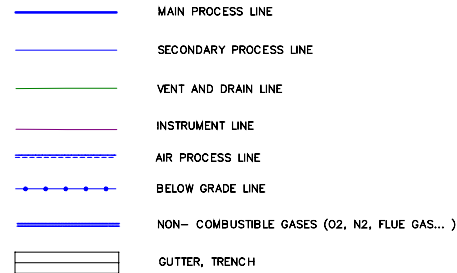
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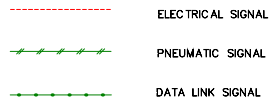
VERIFICATION: N/A Q SUP: B VERIFIER: L1 L2 Q

OWNER											
OWNERS ENGINEERING											
DESIGNER											
PROJECT		Flémalle CCGT Project									
											
03		03/10/2023		ISSUE FOR DESIGN				ML2	RSI	FR1	
SIZE		SCALE		ISSUE FOR DESIGN				ML2	RSI	FR1	
AD		01/04/11/2023		ISSUE FOR DESIGN				ML2	RSI	FR1	
REV		DATE		DESCRIPTION				DESIGNED	CHECKED	APPROVED	
DRAWING NUMBER:		SHEET		DRAWING NAME				P&ID SYMBOLOLOGY AND GENERAL NOTES			
EBL-2B-YM_MDD-EA1-00300		OF									
		3									
DESIGNER DOCUMENT		222-20-DT-M-00300				Rev: 03					

PROCESS LINE SYMBOLS



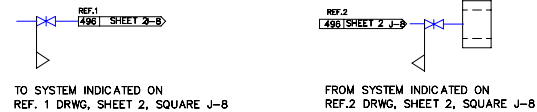
INSTRUMENT SIGNAL SYMBOLS



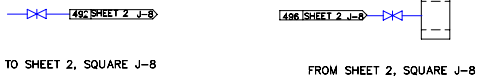
REFERENCES AND P&ID CROSS CONNECTIONS:

THE CONNECTION OF A LINE OF A SYSTEM WITH ANOTHER LINE OF ANOTHER SYSTEM WILL BE INDICATED WITH AN ARROW.

A REFERENCE NUMBER WILL BE INDICATED ABOVE THE ARROW.
THE SYSTEM ASSIGNED TO THE REFERENCE NUMBER WILL BE INDICATED ON THE "REMARK"



INDICATING THE SYSTEM LIMIT AND ITS REFERENCE IS NOT
NECESSARY WHEN THE LINES BELONG TO THE SAME SYSTEM



CONTINUATION OF LINES ON THE SAME SHEET IS INDICATED AS FOLLOWS



IN SOME CASES IT MAY BE CONVENIENT TO WRITE A SHORT TEXT NEXT TO THE ARROW TO INDICATE
THE FUNCTION TO BE PERFORMED OR THE EQUIPMENT TO WHICH THE ARROW CONNECTS



BATTERY LIMITS OF TERMINAL POINTS:

SCOPE OF SUPPLY LIMITS

SCOPE OF SUPPLY LIMIT (* SUPPLIER)



SYSTEM AND SCOPE OF SUPPLY LIMIT (* SUPPLIER)



IDENTIFICATIONS FOR THE SCOPE OF THE DIFFERENT SUPPLIERS WILL BE AS FOLLOWS:

SIE/P1.1: SIEMENS.
JC/P2: JOHN COCKERILL.
EA/P1.3/L01: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 1.3 LOT 01.
EA/P3: CONDENSER.
EA/P4.1/L01: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 01.
EA/P4.1/L02: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 02.
EA/P4.1/L03: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 03.
EA/P4.1/L04: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 04.
EA/P4.1/L05: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 05.
EA/P4.1/L06: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 06.
EA/P4.1/L07: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 07.
EA/P4.1/L08: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 08.
EA/P4.1/L09: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 09.
EA/P4.1/L10: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.1 LOT 10.
EA/P4.2/L01: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.2 LOT 01.
EA/P4.3/L01: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 4.3 LOT 01.
EA/P8.3/L03: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 8.3 LOT 03.
EA/P8.3/L04: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 8.3 LOT 04.
EA/P8.3/L07: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 8.3 LOT 07.
EA/P8.4/L02: DESIGN BY EAI, SUPPLY AND ERECTION BY PACKAGE 8.4 LOT 02.
PS: WITH PACKAGE PLANT SUPPLY OR PUMP SUPPLY.

THESE IDENTIFICATIONS WILL BE SHOWN WITH A SMALL ARROW POINTING TOWARDS THE
AFFECTED ELEMENTS

EXAMPLE:



MAIN TERMINAL POINTS:

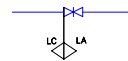
WHEN REQUIRED, MAIN TERMINAL POINTS WILL BE REPRESENTED IN A SMALL
RECTANGULAR BOX.

EXAMPLE:

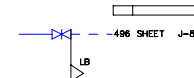


INTERFACES BETWEEN SYSTEMS:

LIMIT BETWEEN SYSTEMS SHOWN ON A FLOW DIAGRAM



LIMIT SHOWN ON A FLOW DIAGRAM INDICATING THE CONTINUATION
IN THE SYSTEM, NOT SHOWN



PIPING DELIMITATION

DELIMITATION OF A PIPING IDENTIFICATION IN THE FIRST BREAKDOWN LEVEL
IS REPRESENTED BY A HOLLOW NEEDLE.

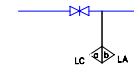


THE SYMBOL FOR THE DELIMITATION WITHIN THE "BR" DELIMITATION IS TO BE A
SOLID NEEDLE.

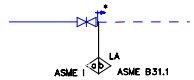


DESIGN CONDITIONS AND CODE JURISDICTION BREAKS

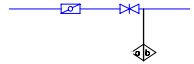
SYSTEM AND DESIGN CONDITIONS LIMIT



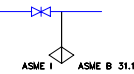
INDICATION OF LIMITS FOR SYSTEMS DESIGN CONDITIONS, SCOPE OF
SUPPLY AND PIPING CODE JURISDICTION (* SUPPLIER)



CHANGE IN THE PIPELINE DESIGN CONDITIONS SHALL BE INDICATED BY
MEANS OF CODING LETTERS. THE DESIGN CONDITIONS CORRESPONDING
TO EACH LETTER WILL BE TABULATED IN BOXES SHOWN ON THE DRAWING.



PIPING CODE JURISDICTION LIMIT



BASIC CRITERIA FOR DRAWINGS:

STANDARD DRAWING SIZES

UNLESS SPECIFIED OTHERWISE, ALL DRAWINGS TO BE FURNISHED SHALL BE PREPARED ON THE
FOLLOWING LISTED STANDARD COMMERCIAL CUT SHEET SIZES:

DESIGNATION ISO 5457	LETTER SIZE	TRIMMED DIMENSION	
		Inch.	mm.
A0	E	33.1x46.8	841x1189
A1	D	23.4x33.1	594x841
A3	B	11.7x16.5	297x420
A4 (HORIZONTAL)	A	8.2x11.7	210x297
A4 (VERTICAL)	A	11.7x8.2	297x210

DRAWING MARGINS AND ZONES

DRAWING MARGINS FOR FLAT SIZE DRAWINGS SHOULD CONFORM TO THE FOLLOWING TABLE:

DESIGNATION ISO 5457	LETTER SIZE	MARGIN (mm)		ZONES (mm)	
		HORZ.	VERT.	HORZ.	VERT.
A0	E	10	LEFT 20-RIGHT 10	12	12
A1	D	10	LEFT 20-RIGHT 10	6	12
A3	B	10	LEFT 20-RIGHT 10	3	6
A4 (HORIZONTAL)	A	10	LEFT 20-RIGHT 10	---	---
A4 (VERTICAL)	A	10	LEFT 20-RIGHT 10	---	---

LETTERING SIZES

LETTER AND NUMBERS SHALL BE CLEARLY LEGIBLE AND MAY BE FREEHAND OR APPLIED USING
GUIDES, TEMPLATES OR MACHINES. DESIRED SIZES (LETTER HEIGHT) ARE THOSE SHOWN ON THE
FOLLOWING TABLE:

LETTERING SIZES	DRAWING SIZES (mm)	
APPLICATION	A3 AND A4	A0 AND A1
DRAWING No.	1.2	4
PART No.	1	3
DWG TITLE, CALLOUTS	1-2	3-6
DIMENSIONS, NOTES	1-1.5	2.75-3.5
"SECTION" "VIEW" "DETAIL"	3	5
"A-A", "B"	3	5

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CONTAINS INFORMATION FOR THE DESIGN OF STRUCTURES:
SYSTEM OR COMPONENTS YES NO
VERIFICATION N/A SUP. VERIFIER L1 L2

OWNER					
OWNERS ENGINEERING					
DESIGNER					
PROJECT	Flémalle CCGT Project				
DRAWING NUMBER	10-11000000	SCALE	1:1	DATE	10-11000000
SHEET	2	DRAWING NAME	P&ID SYMBOLOLOGY AND GENERAL NOTES		
EBL-20-YM-MDD-EAI-00300	OF	3	DESIGNER DOCUMENT		
222-20-DT-M-00300			Rev.		03

PROCESS-RELATED IDENTIFICATION KEY

SERIAL No OF BREAK
LEVEL
TITLE OF BREAKDOWN
LEVEL
DESIGNATION OF
DATA CHARACTER
TYPE OF DATA
CHARACTER

TOTAL PLANT

SYSTEM CODE

EQUIPMENT UNIT CODE

FOR REDUNDANCY IN
MEASUREMENTS: A, B, C.

FOR LINES "BR" & VALVES "AA":

101-299: Main process lines, valves and flow restriction
301-399: Bypass process lines, valves and flow restrictions
401-449: Drain lines and valves
450-499: Vent lines and valves
501-699: Instrument for remote measurement lines and valves
701-799: Local indicator lines and valves
801-899: Sampling lines and valves
811-819: Dosing lines and valves
821-829: Safety (relief valve) lines and valves
851-899: Nitrogen injection lines and valves
901-999: Test and adjustment measuring lines and valves

FOR INSTRUMENTATION

101-199: Switches, digital signals
201-699: Instruments for remote measurement,
(CP, CL, CT, ...) excepted the limit switches
and position of valves (which have the same
number as the valves). Flow elements (BY) of
remote measurement instruments
701-799: Local indicator & flow elements of
such instruments
901-999: Test and adjustment measuring points
& flow element of such instruments

FOR ELECTRICAL MEASUREMENTS "CE"

CE 101 to CE 199: Voltage measurement
CE 201 to CE 299: Current measurement
CE 301 to CE 399: Frequency measurement
CE 401 to CE 499: Power measurement

NOTE 2

PLANT CODE

20 APPLIES TO BALANCE OF PLANT (BOP)
21 APPLIES TO GT PACKAGE
22 APPLIES TO HRGS PACKAGE
23 APPLIES TO ST PACKAGE
24 & ABOVE APPLIES TO OTHER PACKAGES

SYSTEM CLASSIFICATION

CLASSIFICATION OF SYSTEMS AND PLANTS
AS PER KKS KEY
NOTE 1

NUMBERING SUBDIVISION
INTO SUBSYSTEMS FROM 00 UP TO 99
NOTE 1

EQUIPMENT CODE

AA : Valves, dampers, sincl. actuators
AC : Heat exchangers
AP : Pumps
AT : Filters
BB : Vessels, tanks (storage equipment)
BN : Injectors, ejectors
BP : Flow restricting orifices
BR : Piping, ducting
BS : Silencers

LOOP CODE:

CL : Level measurement
CF : Flow measurement
CP : Pressure measurement
CQ : Quality measurement
CT : Temp. measurement
NOTE 1

PROCESS LINE IDENTIFICATION

NOTE 4

EXAMPLE

20LBA201
101000-1-BA1-AHNOMINAL PIPE
SIZE (INCLUDES)

NN AAANN
BR NNN - NN'' - (A)AANo - AA

BOILER EXTERNAL PIPING
(BEP)

BLANK PIPING IS BEP
S PIPING IS ASME BPVC

(OPTIONAL) DATA SHEET
LETTER FOR DIFFERENT
PRESSURE-TEMPERATURE
CONDITIONS
NOTE 4

NUMBER FOR DIFFERENT
MATERIAL GRADES IN THE
SAME TYPE OF MATERIAL

FIRST LETTER DESIGNATION OF PRESSURE CLASS (RATING)	
A	150 LB
B	300 LB
C	400 LB
D	600 LB
E	900 LB
F	1500 LB
G	2500 LB
H	4500 LB
P	25 LB
R	50 LB
S	75 LB
T	125 LB
U	200 LB
V	250 LB
X	SPECIAL

SECOND LETTER TYPE OF MATERIAL	
A	CARBON STEEL
B	ALLOY STEEL
C	STAINLESS STEEL
D	NI ALLOY
E	CAST IRON
F	COPPER & COPPER ALLOY
G	ALUMINIUM & ALUMINIUM ALLOY
L	GALVANIZED CARBON STEEL
M	PLASTIC

FIRST LETTER TYPE OF MATERIAL	
A	MINERAL WOOL
B	FLEXIBLE ELASTOMERIC FOAM

SECOND LETTER INSULATION PURPOSE	
H	HEAT CONSERVATION
P	PERSONAL PROTECTION
F	ANTIFREEZE
FP	ANTIFREEZE (FIRE PROTECTION SYSTEM)
A	ANTISWEAT
T	INSULATION OVER HEAT TRACING
TP	INSULATION OVER HEAT TRACING (FIRE PROTECTION SYSTEM)
S	SOUND ATTENUATION

PIPE SIZES CONVERSION TABLE	
NOMINAL PIPE SIZE	
NPS (in) ASME B36.10M	DN (mm) (SI METRIC)
3/8	10
1/2	15
3/4	20
1	25
1 1/2	40
2	50
2 1/2	65
3	80
4	100
6	150
8	200
10	250
12	300
14	350
16	400
18	450
20	500
24	600
28	700
32	800
36	900
40	1000
44	1100
48	1200
64	1600
72	1800
80	2000

FOR MAIN EQUIPMENT (BB,AP,...):

001-099: Main equipment (pumps, filters,...)
except for instrumentation isolating valves,
flow measurement diaphragms (code A1A2-BY)

INSTRUMENTATION AND VALVES IDENTIFICATION

INSTRUMENTS, VALVES AND MISCELLANEOUS TAKE THEIR FIRST LEVEL OF KKS IDENTIFICATION
FROM THE LINE OR EQUIPMENT IN WHICH THEY ARE LOCATED.

NOTE 1 & 3



INSTRUMENT IDENTIFICATION

FUNCTIONAL IDENTIFICATION

BREAKDOWN LEVELS 0, 1 AND 2

LETTER	FIRST LETTER	MEASURED/INITIATING VARIABLE	MODIFIER	SUCCEEDING LETTERS	
				READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION
A	ANALYSIS			ALARM	
B	BURNER, COMBUSTION			USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE				CONTROL
D	DENSITY		DIFFERENTIAL		CLOSE
E	VOLTAGE			SENSOR, PRIMARY ELEMENT	
F	FLOW		RATIO		
G	USER'S CHOICE			GLASS, GAUGE, VIEWING DEVICE	
H	HAND (MANUAL INPUT)				HIGH
I	CURRENT			INDICATE	
J	POWER				
K	TIME, SCHEDULE				
L	LEVEL			LIGHT	LOW
M	USER'S CHOICE				
N	USER'S CHOICE			USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE			ORIFICE, RESTRICTION	OPEN
P	PRESSURE			POINT (TEST CONNECTION)	
Q	QUANTITY		TOTALIZE		
R	RADIATION			RECORD	RUN
S	SPEED, FREQUENCY		SAFETY		STOP
T	TEMPERATURE				TRANSMIT
U	MULTIVARIABLE			MULTIFUNCTION	VALVE, DAMPER
V	VIBRATION				
W	WEIGHT FORCE			WELL, PROBE	
X	UNCLASSIFIED		X AXIS		
Y	EVENT, STATE, PRESENCE		Y AXIS		
Z	POSITION, DIMENSION		Z AXIS		DRIVE, ACTUATOR

NOTE 1 FOR MORE DETAIL SEE DOC. "PLANT IDENTIFICATION SYSTEM (KKS)" REF EBL-20-YDC-DR-EAI-00202

NOTE 2 THE MANIFOLDS ARE NOT INDIVIDUALLY CODED, THEY ARE CONSIDER TO BELONG TO OR TO BE A
COMPONENT OF THE SENSOR (SAME CODE).
THE FILTERS AND PRESSURE RELIEF VALVES (FOR EACH PNEUMATIC VALVES) ON THE AIR
INSTRUMENTATION SUPPLY LINE ARE ALSO CONSIDER TO BELONG TO THE MAIN VALVE

NOTE 3 THE VALVES USED TO ISOLATE THE SENSORS FROM THE PROCESS ARE CODED WITH THE
SAME NUMBER AS THE INSTRUMENT WHICH THEY ISOLATE
WHEN THERE ARE TWO ISOLATING VALVES IN SERIES, THE NEAREST ISOLATING VALVE WILL HAVE
THE SAME ORDER NUMBER AS THE INSTRUMENT, THE ORDER NUMBER OF THE SECOND ISOLATING
VALVE WILL BE AN+1.
MEASURE OF DIFFERENTIAL PRESSURE:
-ONE ISOLATING VALVE PER IMPULSE LINE: THE ISOLATING VALVE LOCATED ON THE HIGHER
PRESSURE SIDE WILL HAVE THE SAME ORDER NUMBER AS THE INSTRUMENT, THE ORDER OF
THE SECOND VALVE WILL BE AN+1.
-TWO ISOLATING VALVES PER IMPULSE LINE: THE ISOLATING VALVE LOCATED ON THE HIGHER
PRESSURE SIDE AND NEAREST ON THE INSTRUMENT WILL HAVE THE SAME ORDER NUMBER AS
THE SENSOR, THE ORDER NUMBER FOR THE OTHER VALVES WILL BE AN+1, AN+2, AN+3.
THE NUMBERS WILL BE GIVEN FROM THE POSITIVE MEASURE IMPULSE LINE TO THE NEGATIVE
MEASURE IMPULSE LINE AND BACK TO THE INSTRUMENT.

NOTE 4 FOR MORE DETAIL SEE DOC "PIPING DATA SHEETS" REF EBL-20-YM-MR-EA-00403

PROPRIETARY INFORMATION

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CONFIDENTIAL INFORMATION FOR THE DESIGN OF STRUCTURES
SYSTEM OR COMPONENTS YES ☐ NO ☐
VERIFICATION NA ☐ SUP ☐ VERIFIER L1 ☐ L2 ☐

OWNER	engie Electrabel	
OWNERS ENGINEERING	TRACTEBEL	
DESIGNER	EMPRESAS AGRUPADAS	
PROJECT	Flémalle CCGT Project	
SHEET	3	DRAWING NAME
OF	3	
DESIGNER DOCUMENT	222-20-DT-M-00300	P&ID SYMBOLOLOGY AND GENERAL NOTES
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