

ISOMETRIC IFC - CHECK LIST

Line Number	021601WSS0004	Stress CN / Level	Nº 035	Level: II
Isometric Number	023A1021601WSS0004_01	Process Approval Required	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
		Instrumentation Approval Required (N/A)	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Information to be attached:				
Master Copy of PID:	YES <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Nº 800124-026-PID-0021-015	Rev. 1
PID Modification Sheet:	YES <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Nº	Rev.
Equipment Vendor Dwg. :	YES <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Nº	Rev.
Instrument Dwg. :	YES <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Nº	Rev.
Project By-Pass ^(*) :	YES <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Nº	Rev.
SPO Approved Isometric:	YES <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Rev.	Extraction Date:
SIT Approved Isometric:	YES <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Rev.	Extraction Date:


TechnipFMC – Butterfly Project

HOLDS							
	Nº	SHORT DESCRIPTION	RESOLVED (✓)				
Iso Information <p>Nº de línea según PID y lista de líneas / Line Nbr. according to P/D and line list</p> <p>Datos de la línea según lista de líneas / Line data according to line list</p> <p>Clase de tubería según PID y Lista de Líneas / Piping class according to P/D and Line List</p> <p>Vinculo E3D con Diagramas (Process Unit, Temp Operación, Numeración TODAS válvulas manuales) / Link between E3D and Diagrams (Process Unit, Op Temp, ALL manual valves Tagged)</p> <p>Diámetro de la linea indicado en número de linea en el cajetín / Line diameter indicated in the line number in the title block</p> <p>Equipo modelado según plano Vendor válido para generar isométrica IFC / Equipment modelled according Vendor drawing valid for Isometric IFC generation Código / Code: 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> TAG: 021601TK001</p> <p>Equipo modelado según plano Vendor válido para generar isométrica IFC / Equipment modelled according Vendor drawing valid for Isometric IFC generation Código / Code: 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> TAG: 021601PU001</p> <p>Nombre de tubuladuras según PID y plano Vendor / Name of nozzle according to P/D and Vendor drawing</p> <p>Rating y diámetro de tubuladuras según plano Vendor / Rating and diameter of nozzles according to vendor drawing</p> <p>Posición y elevación de tubuladuras según plano Vendor / Position and elevation of nozzles according to Vendor drawing</p>		"N/A" NO APLICABLE	IFC	REV 0 <input checked="" type="checkbox"/>	REV 1 <input type="checkbox"/>	REV 2 <input type="checkbox"/>	
	✓	X ⁽¹⁾	1st-Chk ⁽²⁾	2nd-Chk ⁽³⁾	By: D By: LDG		
	✓	✓	✓	✓			
	✓	✓	✓	✓			
	✓	✓	✓	✓			
	✓	✓	✓	✓			
	✓	✓	✓	✓			
	✓	✓	✓	✓			
	✓	✓	✓	✓			
	✓	✓	✓	✓			
Revision By : (D) Designer / (LDG) Design Leader					By: D	By: LDG	
Linea sin colisión (verificación incluyendo la nube de puntos) / Line is clash free (checked including points cloud)					✓	✓	
Comentarios de SPO a líneas críticas recibidos e implementados antes de extracción final para emisión / Process comments to critical lines received and implemented before final extraction for issuance					✓		
Verificación contra P&ID y Lista de Líneas / Check Iso vs P&ID and Line List : Correcta referencia de la continuidad de la isométrica en líneas nuevas, líneas existentes u otra hoja de la isométrica en los extremos de linea y sus ramales, incluyendo elevaciones y coordenadas / Correct continuity isometric reference to new lines, existing lines or other isometric sheet in each end of the line and its branches including elevations and coordinates					✓	✓	
Verificación contra P&ID / Check Iso vs P&ID : Elementos en linea incluidos, secuencia de picajes, pendiente, sentido de flujo, numeración de instrumentos, cambios de especificación, cumplimiento de notas / in-line components included, branch sequence, slope, flow direction, instrument numbering, pipe class breaks, notes accomplishment					✓	✓	
Verificación contra P&ID / Check Iso vs P&ID : Longitudes requeridas de entrada y/o salida a equipos, distancias y/o elevaciones mínimas o máximas requeridas, formación de condensados / Required inlet and/or outlet lengths to equipments, minimum or maximum distances and/or elevations, condensate generation					✓	✓	
Comentarios de SIT a recibidos e implementados antes de extracción final para emisión / Instrumentation comments received and implemented before final extraction for issuance					✓		
Verificación contra Planos de Vendor o Hook-up Instrumentación / Check Iso vs Instrument Vendor Drawings or Hook-up : Tamaño de las válvulas de control y de seguridad, instalación de acuerdo a hook-up / Size of control valves and safety valves, instrument installation according to hook-up					✓	✓	
Picajes según tabla de picajes correspondiente / Branch configuration according to corresponding branch table					✓	✓	
Ventos y drenajes de Procesos según requerimientos de PIDs y de puntos altos y bajos para prueba hidrostática y modelados según "assembly" correspondiente / Process vents and drains according P/D requirements and high and low points for hydrostatic test and modelled according proper assembly					✓	✓	
Verificación de distancia mínima entre soldaduras / Check minimum distance between welds					✓	✓	
Notas explicativas adicionales incorporadas / Additional clarification notes added					✓		
Revision By : (ST) Stress Specialist / (LST) Stress Leader					By: ST	By: LST	
El cálculo de stress disponible no está pendiente de revisión en curso / Available stress calculation is not awaiting for revision					✓	✓	
Los requisitos según el cálculo de stress están incorporados (si son aplicables) / Stress calculation requirements have been added (if applicable)					✓	✓	
Revision By : (SP) Supports Specialist / (LSP) Supports leader					By: SP	By: LSP	
La linea está soportada por completo y la lista de soportes rellenada / Line is completely supported and support list updated					✓	✓	
Concepto de soporte y separación máxima entre soportes / Support concept and support spans					✓	✓	
Requerimientos de soportes estan de acuerdo al cálculo de stress y ajustados con el especialista de Stress / Support requirements according to stress calculation note are included and adjusted jointly with stress specialist					✓	✓	
Numeración correcta de los soportes / Supports correctly numbered					✓	✓	
Código de soportes correctamente indicados (STD - SPC - COM - MRS - PRF) / Support code correctly indicated (STD - SPC - COM - MRS - PRF)					✓	✓	
Marcado de elementos soldados de los soportes en Iso Spool preliminar correspondiente / Mark-up of welded supports components in the correspondent preliminary Iso Spool					N/A
Revision By : (M) Materials					By: M		
La Linea pertenece a alguna o varias categorías de Criticidad. La Linea está lista en la Lista de Líneas Críticas de Materiales. Sus isometrías requieren Verificación exhaustiva / The Line belongs to some or several categories of Criticality. The Line is listed in the Critical Material Lines List. The isometrics require exhaustive verification					N/A		
Todos los materiales están identificados en la isométrica y se encuentran listados en el listado de materiales / All materials are identified in the isometric and are listed in the BOM					N/A	✓	
Añadidos elementos especiales de tubería en Línea de acuerdo a PIDs última revisión y lista de especiales de tubería (Verificar en adicional correcta Numeración, criterios de Posicionamiento en diseño si aplican) / Inclusion of special piping elements in line according to PIDs latest review and Special Piping Material List (Verify identification number, piping design location criteria if applicable)							
Nº de identificación de válvulas manuales (según PID) / Identification number of manual valve (according to PID)							
Todas las juntas y pernos colocadas según tipo requerido (RF, FF, Bolts, Machine Bolts) / All gaskets and bolts placed according required type (RF, FF, Bolts, Machine Bolts)							
Extensión de volante de válvula modelada y reflejada en lista de materiales de la isométrica / Valves axis extension modelled and reflected in Isometric BOM					N/A		
Válvulas colocadas según PID y Piping Class / Valves placed according PID an Piping Class					✓		
Revision By : (CHK) Issuer					By: CHK		
La isométrica verificada por Procesos (SPO) se corresponde a la última revisión / The isometric verified by Process (SPO) corresponds to its last revision					✓		
La isométrica verificada por Instrumentación (SIT) se corresponde a la última revisión / The isometric verified by Instrumentation (SIT) corresponds to its last revision					✓		
Las notas a mano están incorporadas en las isométricas / The hand-made annotation is included					✓		
La revisión de los documentos para la verificación siguen siendo las actuales / Current revision of documents for checking are still the latest available					✓		
El número de revisión y la fecha son correctos / The revision number and the date are correct					✓		
Todos los comentarios se han revisado para ser incluidos o descartados / All comments have been checked to be included or discarded					✓		
Holds resueltos o en su defecto By-Pass aprobado / Holds resolved or instead By-Pass approved					✓		
SIGNATURES (Name and date)							
DESIGN LEADER (LD)	REVIEWED By Laura Perra at 9:39 am, Nov 25, 2020	SUPPORTS LEADER (LSP)	REVIEWED By Fernando Perea Iacono at 12:37 pm, Dec 28, 2020	ISSUER (CHK)	REVIEWED By Oscar G. Suarez at 1:38 pm, Dec 23, 2020		
STRESS LEADER (LST)	REVIEWED By J.L.L. at 5:02 pm, Dec 09, 2020	MATERIALS (M)	REVIEWED By Jose G. Suarez at 12:00 pm, Dec 10, 2020	DISCIPLINE LEAD (L)			
NOTES:							
[1] If "X" marked, a "HOLD" note should be included in the Holds area for justification.							
[2] 1st checking round: Checker to place a (✓) or a (X) confirming or not Designer verification. A (✓) or a (X) should also be placed to confirm or reject any (X) mark placed by the Designer confirming or not the implicit HOLD.							
[3] 2nd checking round: Checker to place a (✓) to validate the points that were not confirmed in the 1st round and were corrected by respective Specialist.							
[4] If an isometric with HOLD is approved by IFC Leader for issuance, the correspondent By-Pass should be attached.							

MATERIAL LIST - FABRICATION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
1	200	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPG0	2.7M
2	80	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPBW	0.3M
3	200 x 125	Ecc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1UGWKG	1
4	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 2 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,		
5	80 x 40	Conc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2.3MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1NF9VRE	1
6	80	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKC 1 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,		
7	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -, / EN 10222-2 Gr. C1KXSGY8 3 P245GH Galv. as per EN 10240,		
8	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs./3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USZC 3		
9	125	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs./3.2MM EN 10216-5 Gr.X2CrNi19-11, C3R94EF 1		
10	125	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1LD2SS0 1 P245GH Galv. as per EN 10240,		
11	40	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs./3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USTX 1		
12	40	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1KXSGYD 1 P245GH Galv. as per EN 10240,		
13	40	Bal BW,FB,SP,PN 63,BW Ends,Datasheet: 6005/2MM EN 10213 Gr.GX5CrNiMo19-11-2, C3HDWU3J 1		

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
14	125	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 16, IBC Type, Thk=3.2mm, Klingsersil C-4430, TA-Luft & EC1935 (D.S. 5101)/ CNAF,	C2NRP065	1
15	40	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 40, IBC Type, Thk=3.2mm, Klingsersil C-4430, TA-Luft & EC1935 (D.S. 5101)/ CNAF,	C1MSERAJ	1
16	20	205 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDL	16
17	16	110 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBD81	8
18	16	95 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDAT	4
19	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron, C1RC0M6J 2		

PIPING DPT.
ISSUER
CHECKED

By oscar at 1:37 pm, Dec 23, 2020

0	25/11/20	APN	LPD	OMC	IFC-ISSUED FOR CONSTRUCTION
REV	DATE	DWN	CHK	APP	DESCRIPTION

All dimensions to be checked in field prior to construction. Dimensions and routing shall be field adjusted, it is the piping contractors responsibility to check and verify all closing dimensions to equipment and make adjustments as required in field. All dimensions, elevations and coordinates are in millimeter unless noted otherwise. Fieldwelds and overlengths to be determined by piping contractor. Bolt holes to straddle horizontal and vertical centerline unless shown otherwise. Contractor will provide all necessary pipe supports.				
PROJECT DESCRIPTION/LOCATION			 	
BUTTERFLY PROJECT/KREFELD			LINE NUMBER	TRAIN SHEET REV
PROCESS UNIT	DESIGN AREA			
026	023A1	021601-200-WSS-10SS21-0004	01	1 OF 1 0

NOTES:

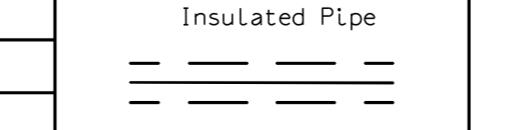
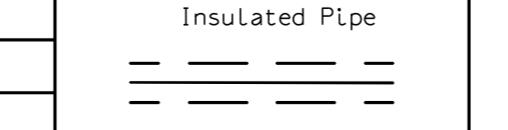
For pipes < dn50 supporting to be studied and defined by construction contractor before line fabrication and installation.

REFERENCES / DOCUMENTS

LINE LIST	30201-042-001000-001
ISOMETRIC INDEX	30303-042-023000-200
PIPING SUPPORT	30207-042-021300-001

SPEC

SYMBOLIC

Insulated Pipe	Insulated and Traced Pipe
	

MATERIAL LIST - FABRICATION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
1	200	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPG0	2.7M
2	80	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPBW	0.3M
3	200 x 125	Ecc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1UGWKKG	1
4	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 2 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,		
5	80 x 40	Conc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2.3MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1NF9VRE	1
6	80	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKC 1 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,		
7	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -, / EN 10222-2 Gr. C1KXSGY8 3 P245GH Galv. as per EN 10240,		
8	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USZC 3		
9	125	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3R94EF 1		
10	125	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1LD2SS0 1 P245GH Galv. as per EN 10240,		
11	40	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USTX 1		
12	40	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1KXSGYD 1 P245GH Galv. as per EN 10240,		
13	40	Bal BW, FB, SP, PN 63, BW Ends, Datasheet: 6005/2MM EN 10213 Gr.GX5CrNiMo19-11-2, C3HDWU3J 1		

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
14	125	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 16, IBC Type, Thk=3.2mm, Klingsersil C-4430, TA-Luft & EC1935 (D.S. 5101) / CNAF,	C2NRP065	1
15	40	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 40, IBC Type, Thk=3.2mm, Klingsersil C-4430, TA-Luft & EC1935 (D.S. 5101) / CNAF,	C1MSERAJ	1
16	20	205 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDLBF	16
17	16	110 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDL81	8
18	16	95 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDAT	4
19	200	But Waf, PN 10, RF or FF, Datasheet: 6100/ Ductile Iron, C1RC0M6J 2		

PIPING DPT.
MATERIALS
CHECKED

By Jose G. Suarez at 12:01 pm, Dec 10, 2020

0	25/11/20	APN	LPD	OMC	IFC-ISSUED FOR CONSTRUCTION
REV	DATE	DWN	CHK	APP	DESCRIPTION

All dimensions to be checked in field prior to construction. Dimensions and routing shall be field adjusted, it is the piping contractors responsibility to check and verify all closing dimensions to equipment and make adjustments as required in field. All dimensions, elevations and coordinates are in millimeter unless noted otherwise. Fieldwelds and overlengths to be determined by piping contractor. Bolt holes to straddle horizontal and vertical centerline unless shown otherwise. Contractor will provide all necessary pipe supports.			
PROJECT DESCRIPTION/LOCATION			TechnipFMC
BUTTERFLY PROJECT/KREFELD			Cargill®
PROCESS UNIT	DESIGN AREA	LINE NUMBER	TRAIN
026	023A1	021601-200-WSS-10SS21-0004	01
		1 OF 1	0

NOTES:

For pipes < dn50 supporting to be studied and defined by construction contractor before line fabrication and installation.

REFERENCES / DOCUMENTS

LINE LIST	30201-042-001000-001
ISOMETRIC INDEX	30303-042-023000-200
PIPING SUPPORT	30207-042-021300-001

SPEC

SYMBOLIC

Insulated Pipe	Insulated and Traced Pipe
— — — —	— — — —

MATERIAL LIST - FABRICATION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
1	200	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPG0	2.7M
2	80	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPBW	0.3M
3	200 x 125	Ecc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1UGWKG	1
4	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 2 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	2
5	80 x 40	Conc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2.3MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1NF9VRE	1
6	80	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKC 1 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKC	1
7	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -, / EN 10222-2 Gr. C1KXSGY8 3 P245GH Galv. as per EN 10240,	C1KXSGY8	3
8	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs./3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3J5USZC	3
9	125	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs./3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3R94EF	1
10	125	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1LD2SS0 1 P245GH Galv. as per EN 10240,	C1LD2SS0	1
11	40	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs./3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3J5USTX	1
12	40	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1KXSGYD 1 P245GH Galv. as per EN 10240,	C1KXSGYD	1
13	40	Bal BW,FB,SP,PN 63,BW Ends,Datasheet: 6005/2MM EN 10213 Gr.GX5CrNiMo19-11-2, C3HDWU3J 1	C3HDWU3J	1

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
14	125	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 16, IBC Type, Thk=3.2mm, Klingsersil C-4430, TA-Luft & EC1935 (D.S. 5101)/ CNAF,	C2NRP065	1
15	40	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 40, IBC Type, Thk=3.2mm, Klingsersil C-4430, TA-Luft & EC1935 (D.S. 5101)/ CNAF,	C1MSERAJ	1
16	20	205 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDL	16
17	16	110 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDL	8
18	16	95 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDAT	4
19	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron, C1RC0M6J 2		

**PIPING DPT.
STRESS
CHECKED**

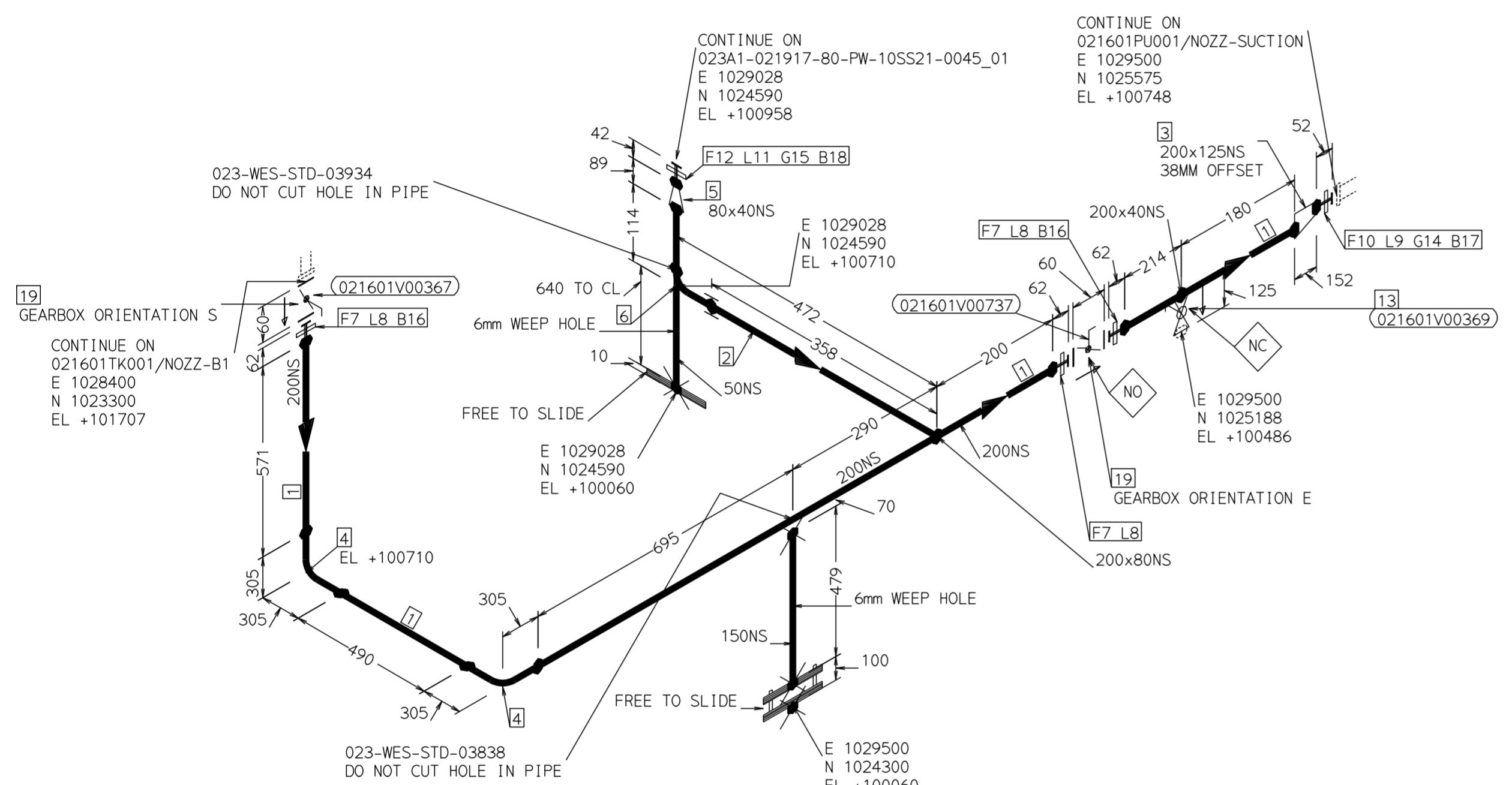
By J. LL at 5:01 pm, Dec 09, 2020

**PIPING DPT.
SUPPORTED**

By mfernandez1 at 5:31 pm, Dec 03, 2020

**PIPING DPT.
SUPPORTS
CHECKED**

By Fernando Perez Iacono at 12:08 pm, Dec 09, 2020



NOTES:

For pipes < dn50 supporting to be studied and defined by construction contractor before line fabrication and installation.

REFERENCES / DOCUMENTS

LINE LIST	30201-042-001000-001
ISOMETRIC INDEX	30303-042-023000-200
PIPING SUPPORT	30207-042-021300-001

SPEC

SYMBOLIC

10SS21

PROJECT DESCRIPTION/LOCATION

BUTTERFLY PROJECT/KREFELD



Insulated Pipe

Insulated and Traced Pipe

PROCESS UNIT

DESIGN AREA

LINE NUMBER

TRAIN

SHEET

REV

026

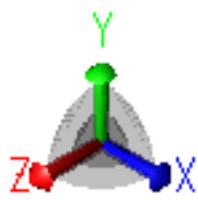
023A1

021601-200-WSS-10SS21-0004

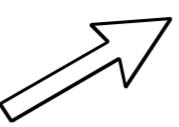
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1 OF 1

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MATERIAL LIST - FABRICATION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
1	200	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPG0	2.7M
2	80	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPBW	0.3M
3	200 x 125	Ecc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1UGWWKG	1
4	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 2 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	2
5	80 x 40	Conc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2.3MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1NF9VRE	1
6	80	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 1 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	1
7	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -, / EN 10222-2 Gr. C1KXSGY8 3 P245GH Galv. as per EN 10240,	C1KXSGY8	3
8	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USZC 3	C3J5USZC	3
9	125	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3R946EF 1	C3R946EF	1
10	125	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1LD2SS0 1 P245GH Galv. as per EN 10240,	C1LD2SS0	1
11	40	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USTX 1	C3J5USTX	1
12	40	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1KXSGYD 1 P245GH Galv. as per EN 10240,	C1KXSGYD	1
13	40	Bal BW,FB,SP,PN 63,BW Ends,Datasheet: 6005/2MM EN 10213 Gr.GX5CrNiMo19-11-2, C3HDWU3J 1	C3HDWU3J	1

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
14	125	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 16, IBC Type, Thk=3.2mm, Klingerstil C-4430, TA-Luft & EC1935 (D.S. 5101) / CNAF,	C2NRP065	1
15	40	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 40, IBC Type, Thk=3.2mm, Klingerstil C-4430, TA-Luft & EC1935 (D.S. 5101) / CNAF,	C1MSERAJ	1
16	20	205 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBD8F	16
17	16	110 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBD8I	8
18	16	95 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDAT	4
19	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron, C1RC0M6J 2		

PIPING DPT.
STRESS
MASTER

By J. LL at 11:28 am, Nov 27, 2020

0	25/11/20	APN	LPD	OMC	IFC-ISSUED FOR CONSTRUCTION
REV	DATE	DWN	CHK	APP	DESCRIPTION

ALL dimensions to be checked in field prior to construction. Dimensions and routing shall be field adjusted, it is the piping contractors responsibility to check and verify all closing dimensions to equipment and make adjustments as required in field. All dimensions, elevations and coordinates are in millimeter unless noted otherwise. Fieldwelds and overlengths to be determined by piping contractor. Bolt holes to straddle horizontal and vertical centerline unless shown otherwise. Contractor will provide all necessary pipe supports.

NOTES:

For pipes < dn50 supporting to be studied and defined by construction contractor before line fabrication and installation.

REFERENCES / DOCUMENTS

LINE LIST	30201-042-001000-001
ISOMETRIC INDEX	30303-042-023000-200
PIPING SUPPORT	30207-042-021300-001

SPEC

SYMBOLS

10SS21

PROJECT DESCRIPTION/LOCATION

BUTTERFLY PROJECT/KREFELD

Insulated Pipe

Insulated and Traced Pipe

PROCESS UNIT

DESIGN AREA

LINE NUMBER

TRAIN

SHEET

REV

026	023A1	021601-200-WSS-10SS21-0004	01	1 OF 1	0
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MATERIAL LIST - FABRICATION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
1	200	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPG0	2.7M
2	80	Pipes (Length), EN 10220, BE, EFW + 100% RT, -, /2MM EN 10217-7 Gr.X2CrNi19-11,	C1P0FPBW	0.3M
3	200 x 125	Ecc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1UGWWKG	1
4	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 2 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	2
5	80 x 40	Conc Reducer, EN 10253-4 Type A, BW Ends, Welded + 100% RT, -, /2.3MM/2MM EN 10253-4 Gr.X2CrNi19-11,	C1NF9VRE	1
6	80	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, C1KXKEKG 1 M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	1
7	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -, / EN 10222-2 Gr. C1KXSGY8 3 P245GH Galv. as per EN 10240,	C1KXSGY8	3
8	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USZC 3	C3J5USZC	3
9	125	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3R946EF 1	C3R946EF	1
10	125	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1LD2SS0 1 P245GH Galv. as per EN 10240,	C1LD2SS0	1
11	40	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN16 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11, C3J5USTX 1	C3J5USTX	1
12	40	LJ Flg, EN 1092-1 Type 02, FF, PN 16, -, / EN 10222-2 Gr. C1KXSGYD 1 P245GH Galv. as per EN 10240,	C1KXSGYD	1
13	40	Bal BW,FB,SP,PN 63,BW Ends,Datasheet: 6005/2MM EN 10213 Gr.GX5CrNiMo19-11-2, C3HDWU3J 1	C3HDWU3J	1

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
14	125	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 16, IBC Type, Thk=3.2mm, Klingerstil C-4430, TA-Luft & EC1935 (D.S. 5101)/ CNAF,	C2NRP065	1
15	40	NM Flat Gk, EN 1514-1, RF as per EN 1092-1, PN 40, IBC Type, Thk=3.2mm, Klingerstil C-4430, TA-Luft & EC1935 (D.S. 5101)/ CNAF,	C1MSERAJ	1
16	20	205 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBD8F	16
17	16	110 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBD8I	8
18	16	95 SBLt 2 HHx N&2W, ISO 261/ISO 4032, Full Length Threaded, F.Wash. EN ISO 887, A2, EN ISO 7089 ISO 3506-1 Gr.A2-70,	C3JHBDAT	4
19	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron, C1RC0M6J 2	C1RC0M6J	2

VOID

PIPING DPT.
DESIGNED

By apereznune at 9:00 am, Nov 25, 2020

PIPING DPT.
DESIGN
CHECKED

By Laura Parra at 9:42 am, Nov 25, 2020

0	25/11/20	APN	LPD	OMC	IFC-ISSUED FOR CONSTRUCTION
REV	DATE	DWN	CHK	APP	DESCRIPTION
ALL dimensions to be checked in field prior to construction. Dimensions and routing shall be field adjusted, it is the piping contractors responsibility to check and verify all closing dimensions to equipment and make adjustments as required in field. All dimensions, elevations and coordinates are in millimeter unless noted otherwise. Fieldwelds and overlengths to be determined by piping contractor. Bolt holes to straddle horizontal and vertical centerline unless shown otherwise. Contractor will provide all necessary pipe supports.					
PROJECT DESCRIPTION/LOCATION BUTTERFLY PROJECT/KREFELD					
TechnipFMC	Cargill				
PROCESS UNIT	DESIGN AREA	LINE NUMBER			TRAIN SHEET REV
026	023A1	021601-200-WSS-10SS21-0004			01 1 OF 1 0

NOTES:

For pipes < dn50 supporting to be studied and defined by construction contractor before line fabrication and installation.

REFERENCES / DOCUMENTS

LINE LIST	30201-042-001000-001
ISOMETRIC INDEX	30303-042-023000-200
PIPING SUPPORT	30207-042-021300-001

SPEC

SYMBOLIC

Insulated Pipe	Insulated and Traced Pipe
— — — —	— — — —

PROJECT DESCRIPTION/LOCATION

BUTTERFLY PROJECT/KREFELD