
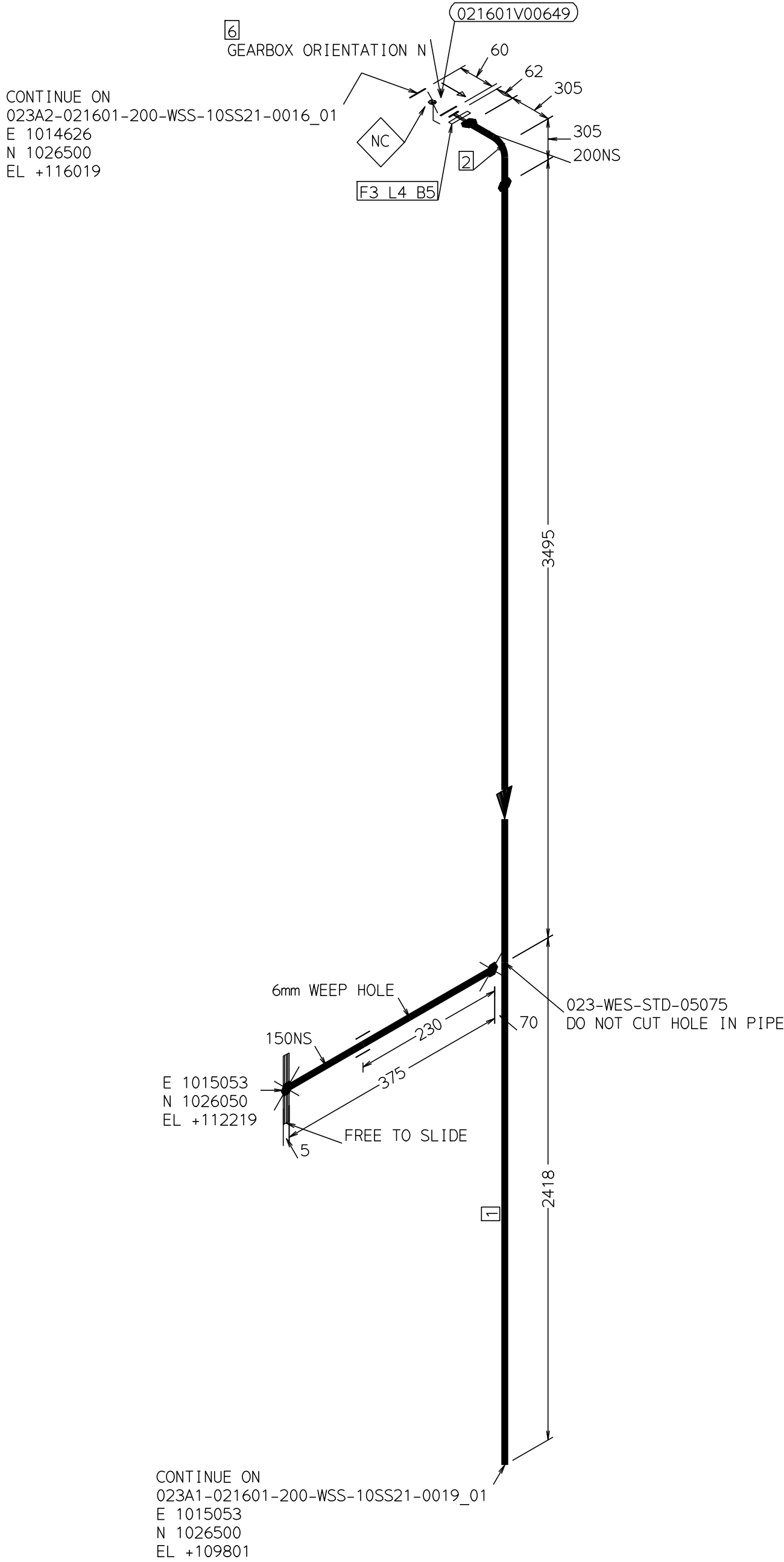


Line Number	021601WSS0019	Stress CN / Level	Nº / Level: 1	 TechnipFMC – Butterfly Project			
Isometric Number	023A021601WSS0019_01	Process Approval Required	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				
		Intrumentation Approval Required (N/A)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				
Information to be attached:				HOLDS			
Master Copy of PID:	YES <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	Nº	800124-026-PID-0021-017-1	Rev.	Nº	SHORT DESCRIPTION	RESOLVED (✓)
PID Modification Sheet:	YES <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Nº		Rev.			
Equipment Vendor Dwg.:	YES <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Nº		Rev.			
Instrument Dwg.:	YES <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Nº		Rev.			
Project By-Pass ⁽⁶⁾ :	YES <input type="checkbox"/> N/A <input checked="" 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:			

A VERIFICAR / TO BE CHECKED				N/A * NO APLICABLE / NOT APPLICABLE	IFC <input checked="" type="checkbox"/>	REV 0 <input checked="" type="checkbox"/>	REV 1 <input type="checkbox"/>	REV 2 <input type="checkbox"/>
Revision By : (D) Designer / (LDG) Design Leader / (ST) Stress Specialist / (LST) Stress Leader / (SP) Supports Specialist / (LSP) Supports leader / (M) Materials / (SL) Spooler / (CHK) Issuer / (L) Discipline Lead					✓	X ⁽¹⁾	1st-Chk ⁽²⁾	2nd-Chk ⁽³⁾
Revision By : (D) Designer / (LDG) Design Leader					By: D		By: LDG	
Iso Information	Nº de línea según PID y lista de líneas / Line Nbr. according to PID and line list				✓		✓	
	Datos de la línea según lista de líneas / Line data according to line list				✓		✓	
	Clase de tubería según PID y Lista de Líneas / Piping class according to PID and Line List				✓		✓	
	Vínculo E3D con Diagrams (Process Unit, Temp Operación, Numeración TODAS válvulas manuales) / Link between E3D and Diagrams (Process Unit, Op Temp, ALL manual valves Tagged)				✓		✓	
Equipment	Diámetro de la línea indicado en número de línea en el cajetín / Line diameter indicated in the line number in the title block				✓		✓	
	Equipo modelado según plano Vendor válido para generar isométrica IFC / Equipment modelled according Vendor drawing valid for Isometric IFC generation		N/A					
	Código / Code: 2 <input type="checkbox"/> 3 <input type="checkbox"/>							
	Nombre de tubuladuras según PID y plano Vendor / Name of nozzle according to PID and Vendor drawing		N/A					
Line Design	Rating y diámetro de tubuladuras según plano Vendor / Rating and diameter of nozzles according to vendor drawing		N/A					
	Posición y elevación de tubuladuras según plano Vendor / Position and elevation of nozzles according to Vendor drawing		N/A					
	Revision By : (D) Designer / (LDG) Design Leader				By: D		By: LDG	
	Línea sin colisión (verificación incluyendo la nube de puntos) / Line is clash free (checked including points cloud)				✓		✓	
Stress	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		N/A					
	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 línea 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 línea 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		N/A					
	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		N/A					
	Picajes según tabla de picajes correspondiente / Branch configuration according to correspondent branch table				✓		✓	
	Verticales 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 PID requirements and high and low points for hydrostatic test and modelled according proper assembly				✓		✓	
Supports	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							
Materials	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 línea 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				✓		✓	
Final Check	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)				✓		✓	
	Markado 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					
Materials	Revision By : (M) Materials				By: M			
	La Línea pertenece a alguna o varias categorías de Criticidad. La Línea está listada en la Lista de Líneas Críticas de Materiales. Sus isometricas 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							
	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)		N/A					
By: CHK	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				✓			
Final Check	Revision By : (CHK) Issuer				By: CHK			
					1st-Chk ⁽²⁾		2nd-Chk ⁽³⁾	
					✓	X	✓	X
	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 se 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 rvasquezhu at 2:30 pm, Jan 27, 2021	SUPPORTS LEADER (LSP)	REVIEWED By Sergio Zamora at 1:39 pm, Feb 03, 2021	ISSUER (CHK)	REVIEWED By oscar at 5:02 pm, Feb 04, 2021
STRESS LEADER (LST)		MATERIALS (M)	REVIEWED By Jose G. Suarez at 4:51 pm, Feb 03, 2021	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	6.0M
2	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, M.3D, Serie 1, /2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	1
3	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -, / EN 10222-2 Gr. P245GH Galv. as per EN 10240,	C1KXSGY8	1
4	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs, /3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3J5USZC	1

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
5	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,	C3JHBDBF	8
6	200	But Waf, PN 10, RF or FF, Datasheet: 6100/ Ductile Iron,	C1RCOM6J	1

PIPING DPT.
ISSUER
CHECKED
By oscar at 4:59 pm, Feb 04, 2021

0	18/12/20	AF	LP	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.

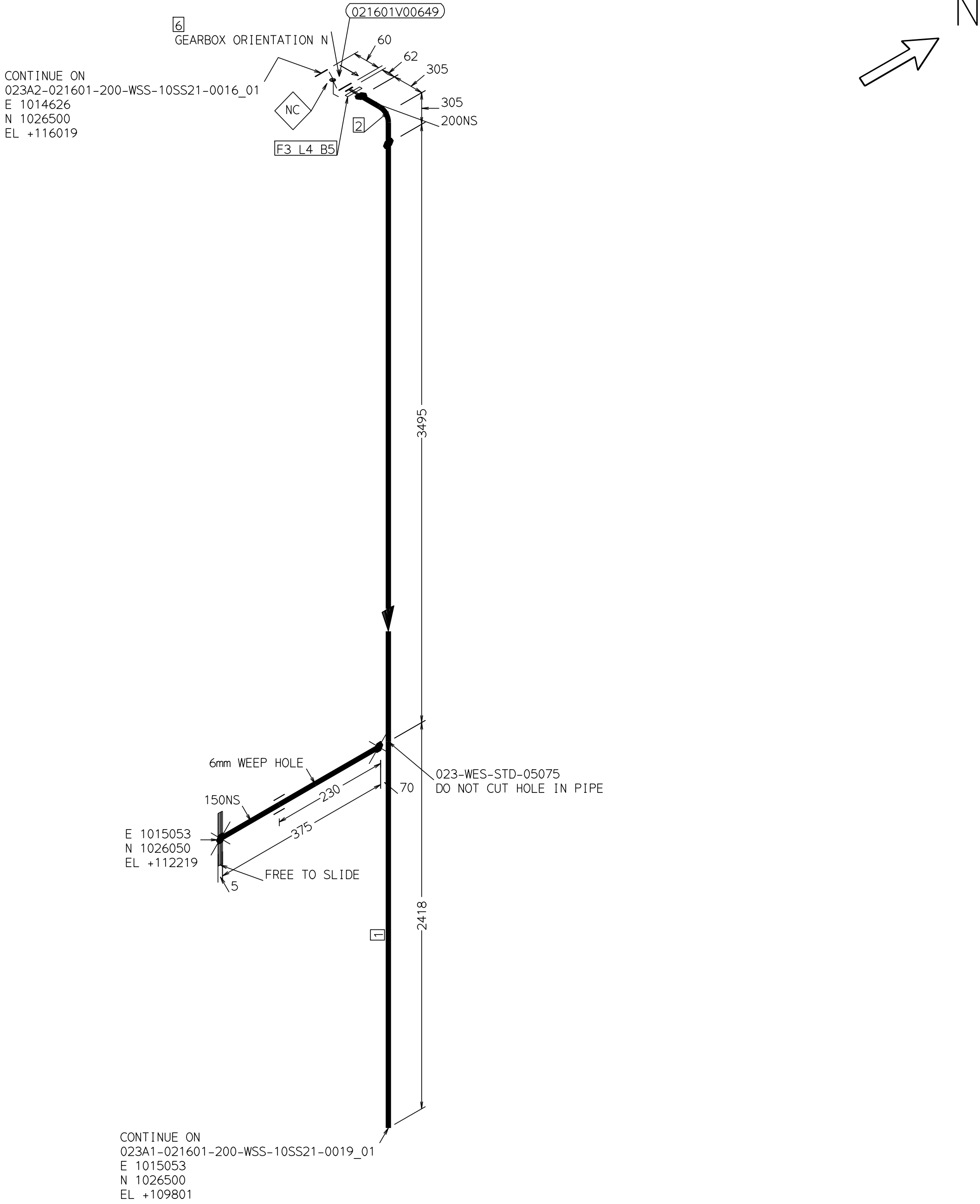
NOTES:

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	10SS21
SYMBOLOLOGY	
Insulated Pipe	Insulated and Traced Pipe
— — — —	— — — —

PROJECT DESCRIPTION/LOCATION		TechnipFMC		Cargill	
BUTTERFLY PROJECT/KREFELD					
PROCESS UNIT	DESIGN AREA	LINE NUMBER			TRAIN
026	023A2	021601-200-WSS-10SS21-0019			01
				SHEET	REV
				1 OF 1	0



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	6.0M
2	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, M.3D, Serie 1,/2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	1
3	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -,/ EN 10222-2 Gr. P245GH Galv. as per EN 10240,	C1KXSGY8	1
4	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs,/3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3J5USZC	1

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
5	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,	C3JHBDBF	8
6	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron,	C1RCOM6J	1

PIPING DPT.
**MATERIALS
CHECKED**
By Jose G. Suarez at 4:53 pm, Feb 02, 2021

0	18/12/20	AF	LP	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.

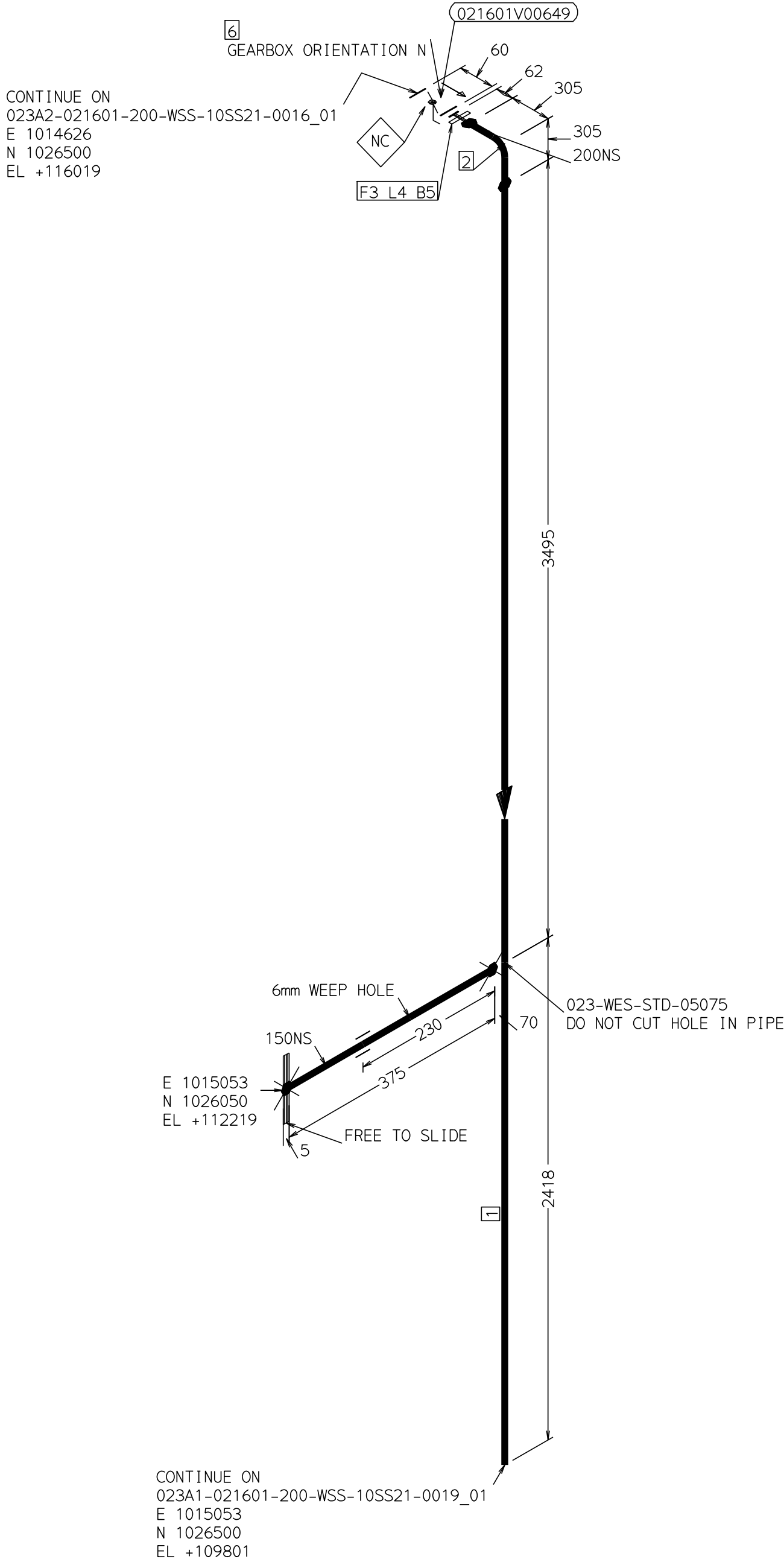
NOTES:

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	10SS21
SYMBOLOLOGY	
Insulated Pipe	Insulated and Traced Pipe
— — — —	— — — —

PROJECT DESCRIPTION/LOCATION						
BUTTERFLY PROJECT/KREFELD						
PROCESS UNIT	DESIGN AREA	LINE NUMBER		TRAIN	SHEET	REV
026	023A2	021601-200-WSS-10SS21-0019		01	1 OF 1	0



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	6.0M
2	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, M.3D, Serie 1,/2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	1
3	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -,/ EN 10222-2 Gr. P245GH Galv. as per EN 10240,	C1KXSGY8	1
4	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs,/3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3J5USZC	1

MATERIAL LIST - ERECTION

PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
5	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,	C3JHBDBF	8
6	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron,	C1RCOM6J	1



PIPING DPT.
SUPPORTED
By D. Navarro at 9:32 am, Jan 29, 2021

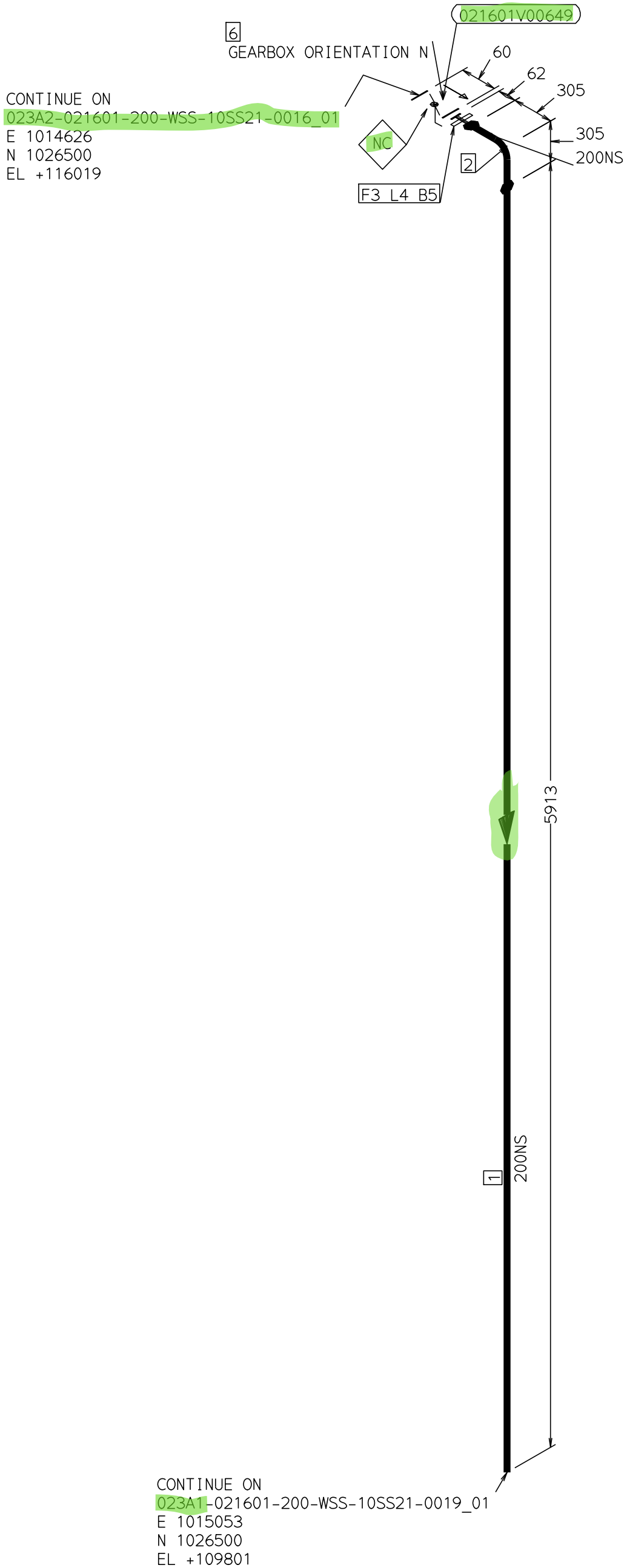
PIPING DPT.
SUPPORTS CHECKED
By Sergio Zamora at 1:29 pm, Feb 02, 2021

0	18/12/20	AF	LP	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:	REFERENCES / DOCUMENTS		SPEC	10SS21
			SYMBOLOLOGY	
	LINE LIST	30201-042-001000-001	Insulated Pipe	Insulated and Traced Pipe
	ISOMETRIC INDEX	30303-042-023000-200	— — — —	— — — —
	PIPING SUPPORT	30207-042-021300-001		

PROJECT DESCRIPTION/LOCATION							
BUTTERFLY PROJECT/KREFELD							
PROCESS UNIT	DESIGN AREA	LINE NUMBER			TRAIN	SHEET	REV
0226	023A2	021601-200-WSS-10SS21-0019			01	1 OF 1	0



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	6.0M
2	200	90° Elb LR, EN 10253-4 Type A, BW Ends, Welded + 100% RT, M.3D, Serie 1,/2MM EN 10253-4 Gr.X2CrNi19-11,	C1KXKEKG	1
3	200	LJ Flg, EN 1092-1 Type 02, FF, PN 10, -,/ EN 10222-2 Gr. P245GH Galv. as per EN 10240,	C1KXSGY8	1
4	200	Stub LP, EN 1092-1 Type 36, BW Ends, Seamless, PN10 Flgs,/3.2MM EN 10216-5 Gr.X2CrNi19-11,	C3J5USZC	1

MATERIAL LIST - ERECTION



PT NO	N.S. (MM)	DESCRIPTION	IDENT	QTY
5	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,	C3JHBDBF	8
6	200	But Waf,PN 10,RF or FF,Datasheet: 6100/ Ductile Iron,	C1RCOM6J	1

PIPING DPT.
DESIGNED
By Andrea Ferranti at 11:50 am, Dec 18, 2020

PIPING DPT.
DESIGN
CHECKED
By rvasquezhu at 2:31 pm, Jan 27, 2021

0	18/12/20	AF	LP	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							
PROCESS UNIT	DESIGN AREA	LINE NUMBER			TRAIN	SHEET	REV
0226	023A2	021601-200-WSS-10SS21-0019			01	1 OF 1	0

NOTES:	REFERENCES / DOCUMENTS		SPEC	10SS21
			SYMBOLOLOGY	
	LINE LIST	30201-042-001000-001	Insulated Pipe	Insulated and Traced Pipe
	ISOMETRIC INDEX	30303-042-023000-200	— — — —	— — — —
For pipes < dn50 supporting to be studied and defined by construction contractor before line fabrication and installation.		PIPING SUPPORT	30207-042-021300-001	