

This document is TECHNIP's property. It may not be copied, disclosed and/or used without TECHNIP's specific prior authorization.



1	TIE - ROD	1
ITEM	DESCRIPTION	QTY

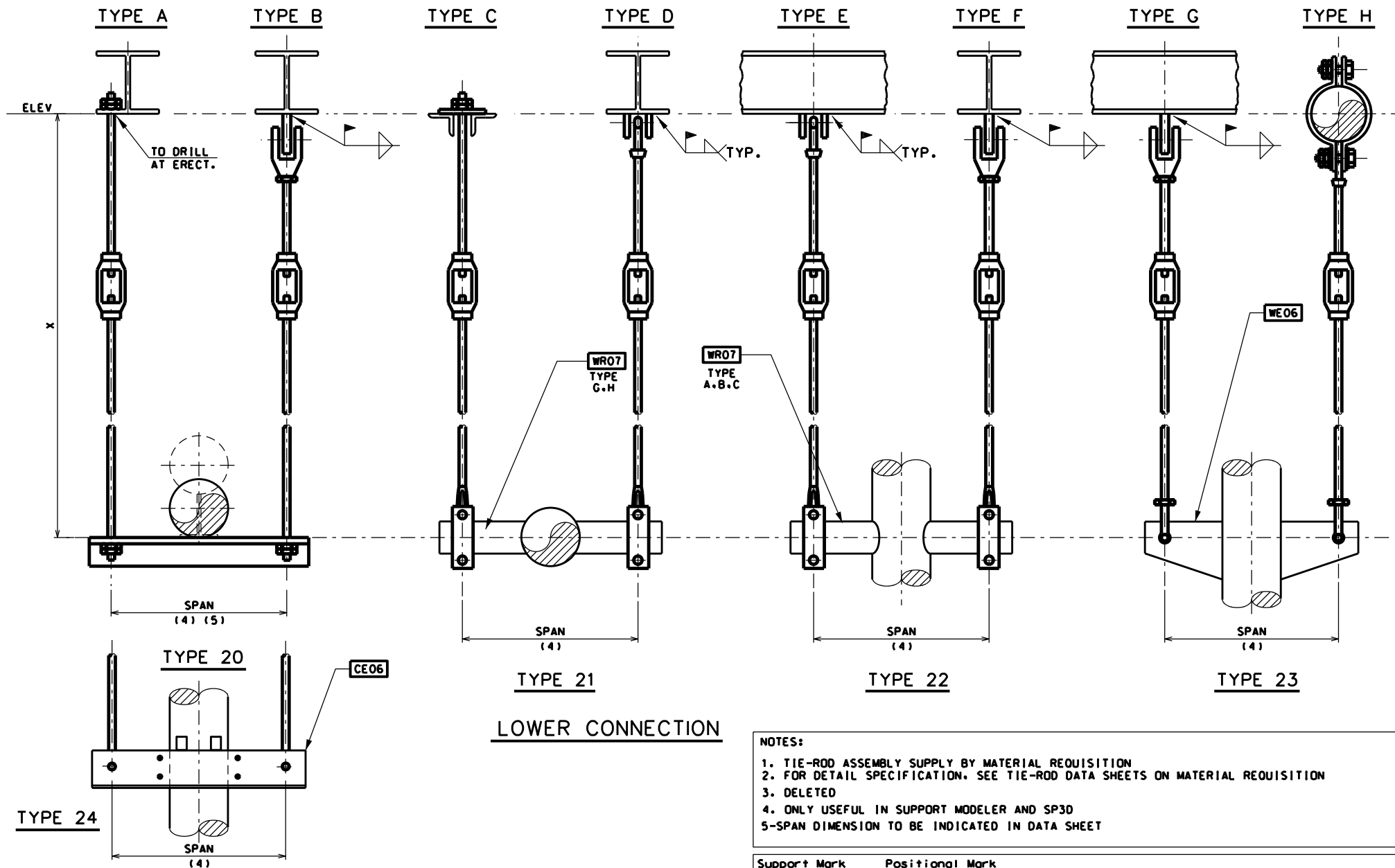
1. TIE-ROD ASSEMBLY SUPPLY BY MATERIAL REQUISITION
2. FOR DETAIL SPECIFICATION, SEE TIE-ROD DATA SHEETS ON MATERIAL REQUISITION
3. DELETED
4. ONLY USEFUL IN SUPPORT MODELER AND SP3D

HT01	ITEM	ELEV
------	------	------

HT01

G	XXXXXXXXXX	000	STC 1393-06	1 of 1	0
	Project	Unit	Doc. Code & Serial No.	Page	Rev.

## UPPER CONNECTION



## LOWER CONNECTION

**NOTES:**

1. TIE-ROD ASSEMBLY SUPPLY BY MATERIAL REQUISITION
2. FOR DETAIL SPECIFICATION, SEE TIE-ROD DATA SHEETS ON MATERIAL REQUISITION
3. DELETED
4. ONLY USEFUL IN SUPPORT MODELER AND SP3D
- 5-SPAN DIMENSION TO BE INDICATED IN DATA SHEET

Support + Mark

---

**Positional Mark**

HT02	ITEM	ELEV
------	------	------

ELEV

**Technip**

### DOUBLE TIE-ROD HANGERS

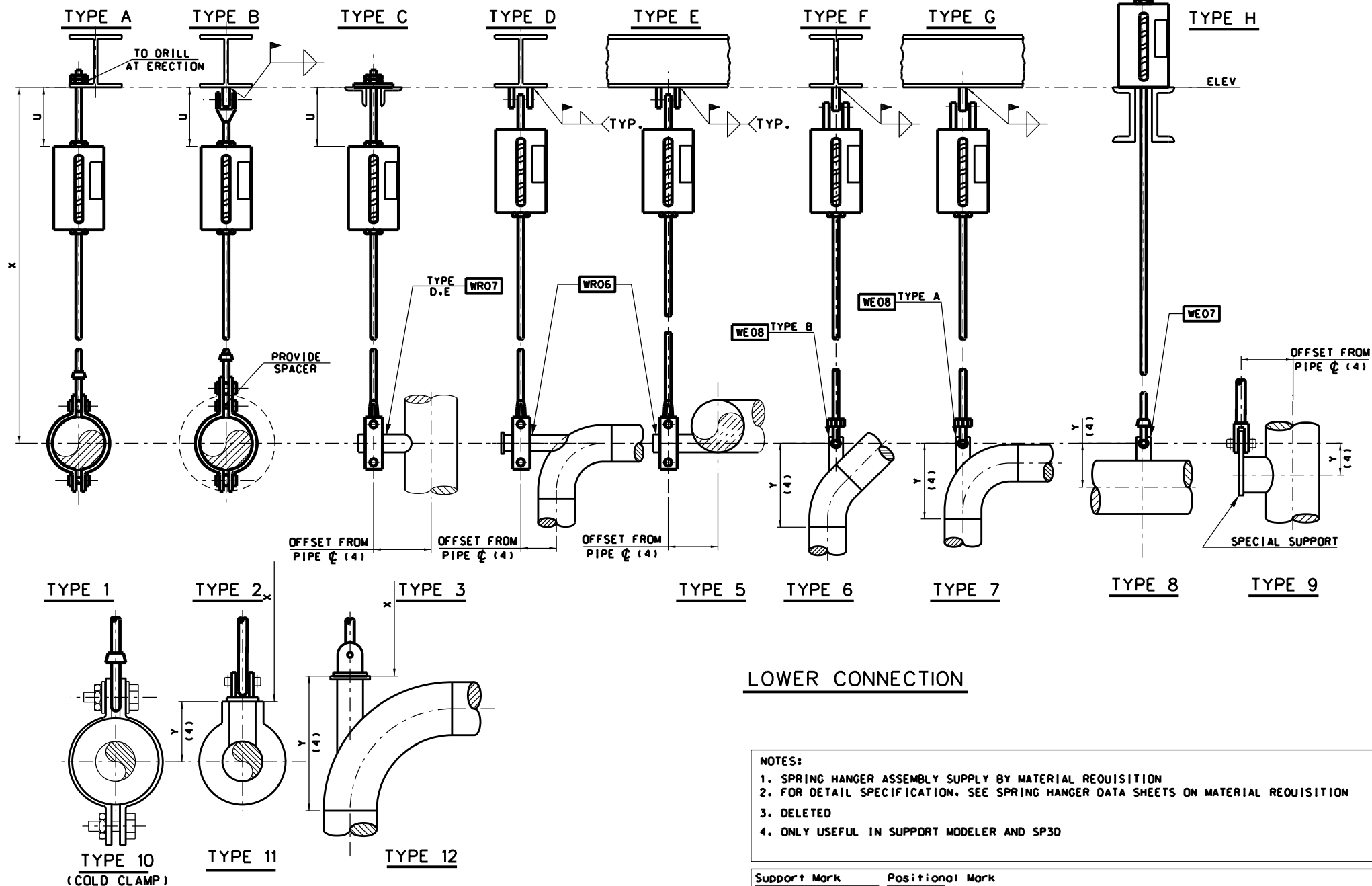
HT02

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

G	XXXXXXXXXX	000	STC 1393-07	1 of 1	0
	Project	Unit	Doc. Code & Serial No.	Page	Rev.

①	TIE - ROD	2	SEE NOTE 2.										
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH		
				<b>MATCL</b>									

### UPPER CONNECTION



## LOWER CONNECTION

**NOTES:**

1. SPRING HANGER ASSEMBLY SUPPLY BY MATERIAL REQUISITION
2. FOR DETAIL SPECIFICATION, SEE SPRING HANGER DATA SHEETS ON MATERIAL REQUISITION
3. DELETED
4. ONLY USEFUL IN SUPPORT MODELER AND SP3D

Support + Mark

---

**Positional Mark**

HV01

ITEM

ELEV

**Technip**

## SINGLE VARIABLE SPRING HANGER

HV01

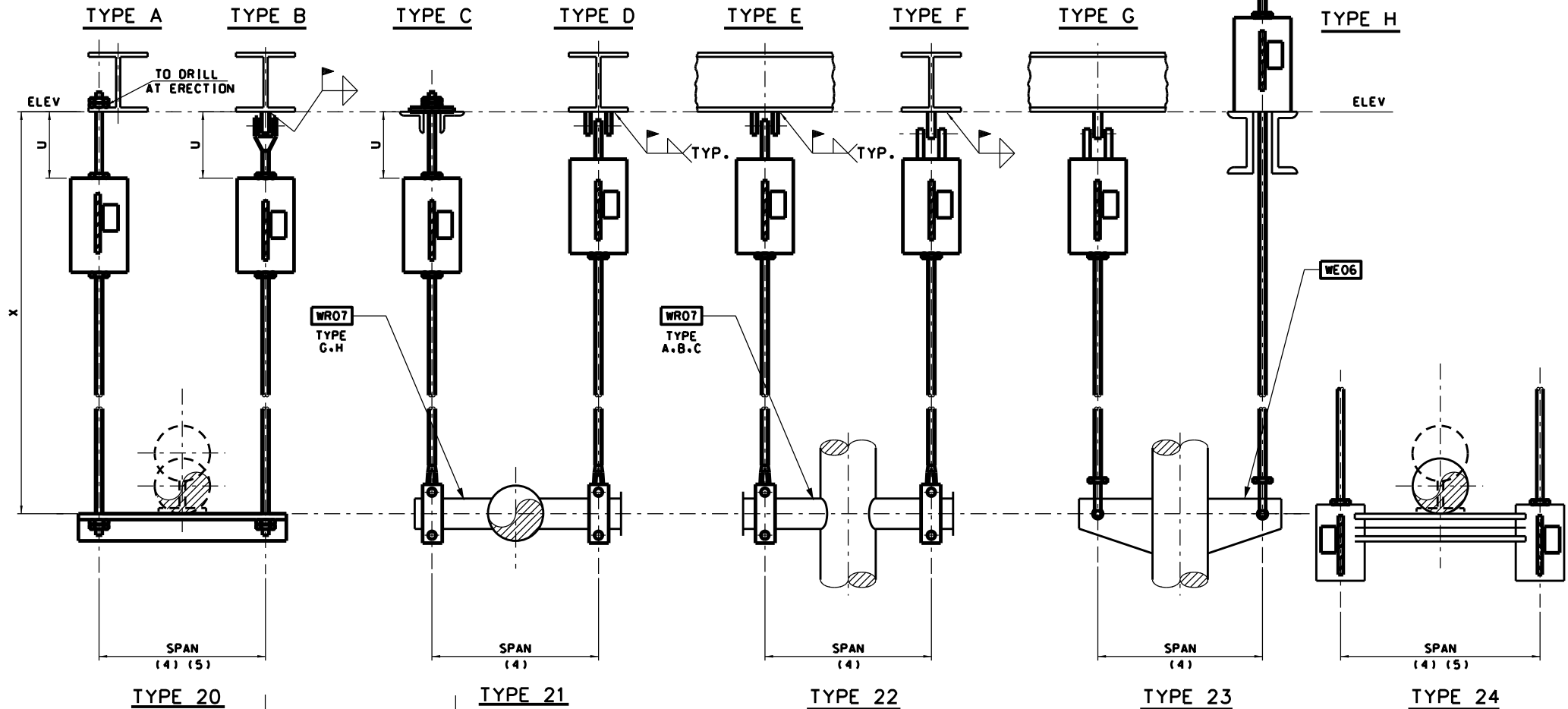
# STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING

XXXXXXX	000	STC 1393-08	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.

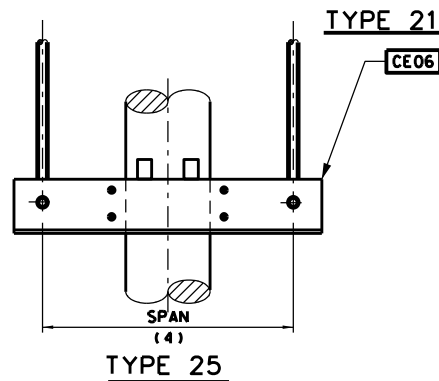
○													
○													
○													
①	SPRING HANGER	1	SEE NOTE 2.										
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH		
				MATCL									

This document is TECHNIP's property. It may not be copied, disclosed and/or used without TECHNIP's specific prior authorization.

## UPPER CONNECTION



## LOWER CONNECTION



### NOTES:

1. SPRING HANGER ASSEMBLY SUPPLY BY MATERIAL REQUISITION
2. FOR DETAIL SPECIFICATION, SEE SPRING HANGER DATA SHEETS ON MATERIAL REQUISITION
3. DELETED
4. ONLY USEFUL IN SUPPORT MODELER AND SP3D
5. SPAN DIMENSION TO BE INDICATED IN DATA SHEET

Support Mark

Positional Mark

HV02 ITEM ELEV

**Technip**

DOUBLE VARIABLE SPRING HANGER HV02

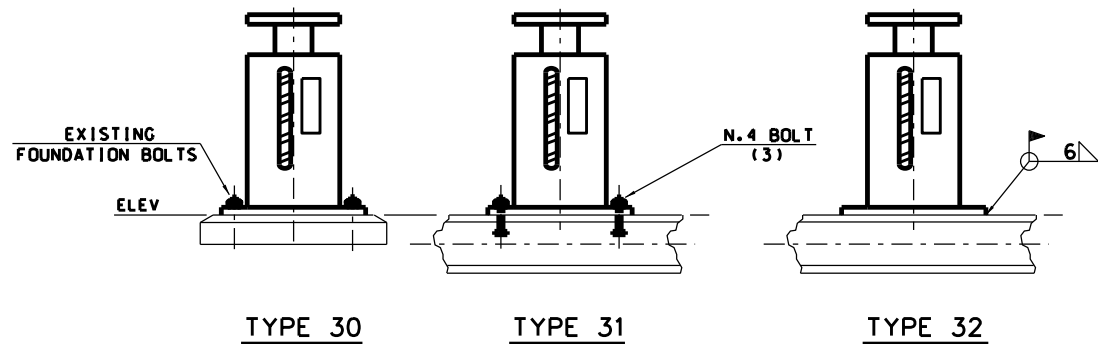
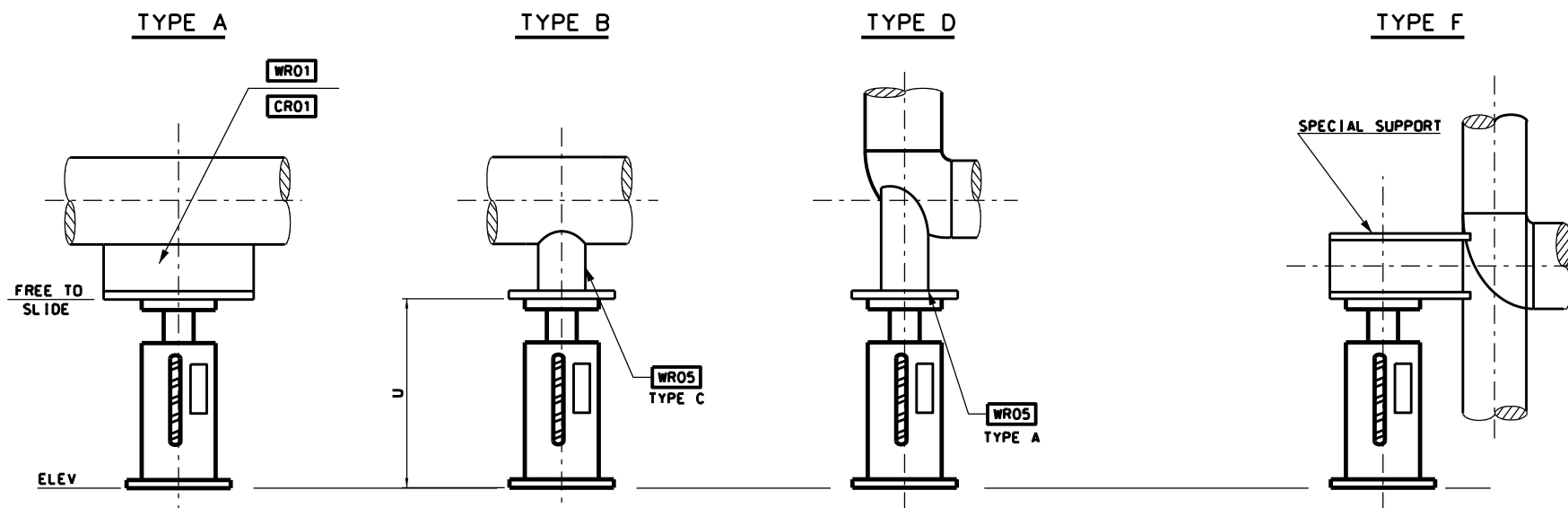
STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXXXXXX 000 STC 1393-09 1 of 1 0  
Project Unit Doc. Code & Serial No. Page Rev.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH
1	SPRING HANGER	2	SEE NOTE 2.								



## UPPER CONNECTION



## LOWER CONNECTION

**NOTES:**

1. SPRING HANGER ASSEMBLY SUPPLY BY MATERIAL REQUISITION
2. FOR DETAIL SPECIFICATION, SEE SPRING HANGER DATA SHEETS ON MATERIAL REQUISITION
3. BOLTS INCLUDED ON THE MATERIAL REQUISITION
4. DELETED
5. FOR EACH TYPE, PTFE SHALL BE SUPPLIED TOGETHER WITH THE SPRING HANGER AND SPECIFIED IN DATA SHEET

Support + Mark

---

**Positional Mark**

HV03	ITEM	ELEV
------	------	------

ELEV

**Technip**

## SINGLE VARIABLE SPRING BASE

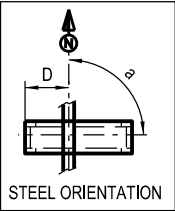
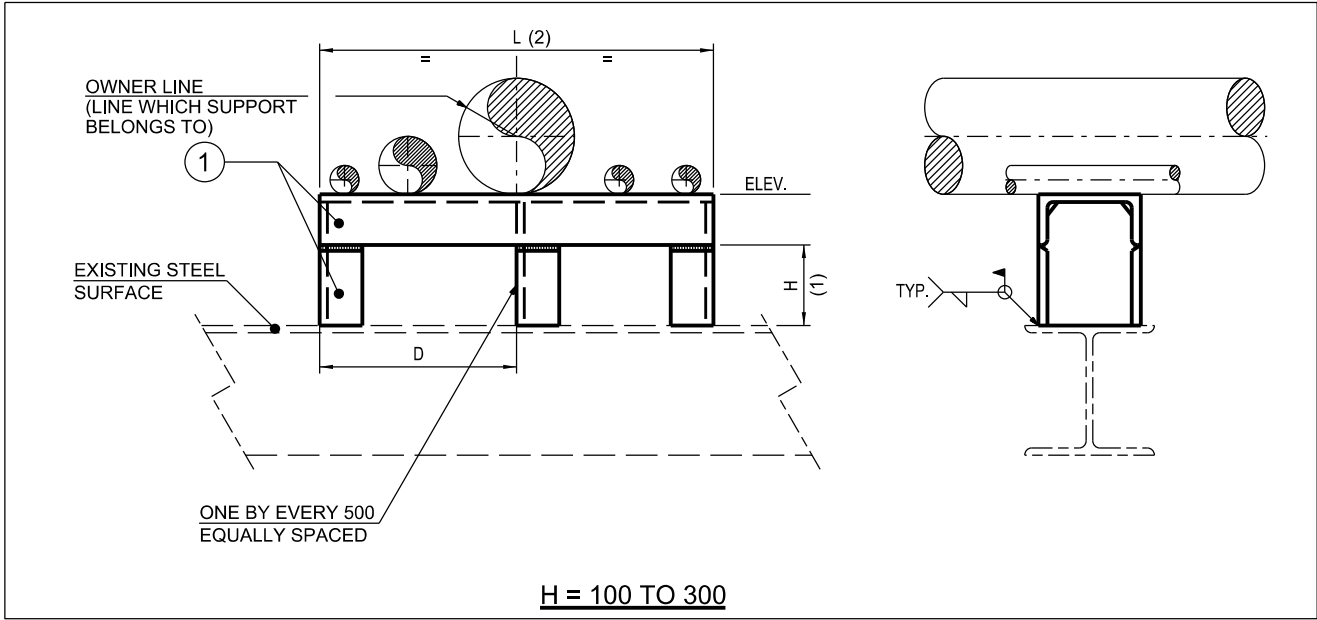
HV03

# STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING

G	XXXXXXXXXX	000	STC 1393-10	1 of 1	0
	Project	Unit	Doc. Code & Serial No.	Page	Rev.

○													
○													
○													
①	SPRING HANGER	1	SEE NOTE 2.										
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH		
				MATCL									

<input type="radio"/>															
<input type="radio"/>															
<input type="radio"/>															
<input checked="" type="radio"/>	SPRING HANGER	2	SEE NOTE 2.												
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH				
				MATCL											



MAXI ALLOWABLE LOAD - 10 kN

NOTES:  
1. H DIMENSION SHALL BE ADJUSTED AT ERECTION BEFORE WELDING IF NECESSARY.  
2. L DIMENSION FROM 100 TO 1000 BY STEPS OF 100.

<input type="radio"/>													
<input type="radio"/>													
<input type="radio"/>													
<input checked="" type="radio"/>	STRUCTURE	1	SHAPE MC 100	A36	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL	
MATCL													

Support Mark				Positional Mark			
SB01 H L D				ELEV a			
Technip				MULTI COLUMNS FRAME			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 01	1 of 1
Project				Unit		Doc. Code & Serial No.	Page
							Rev.
							1

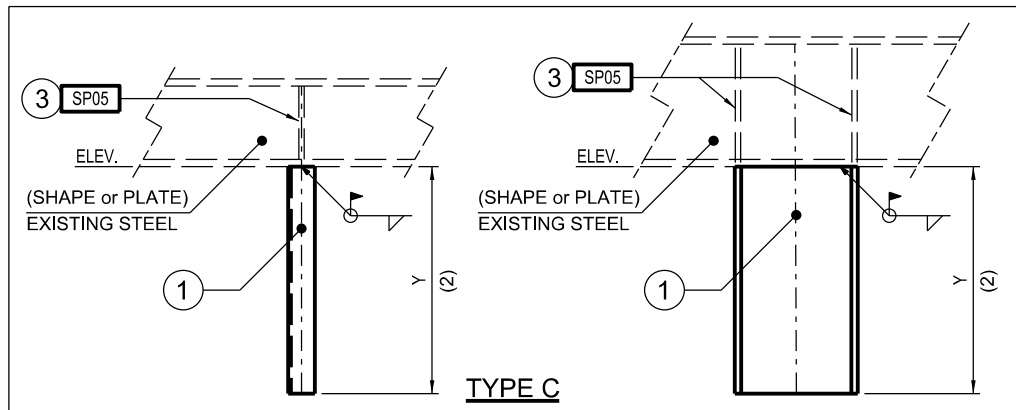
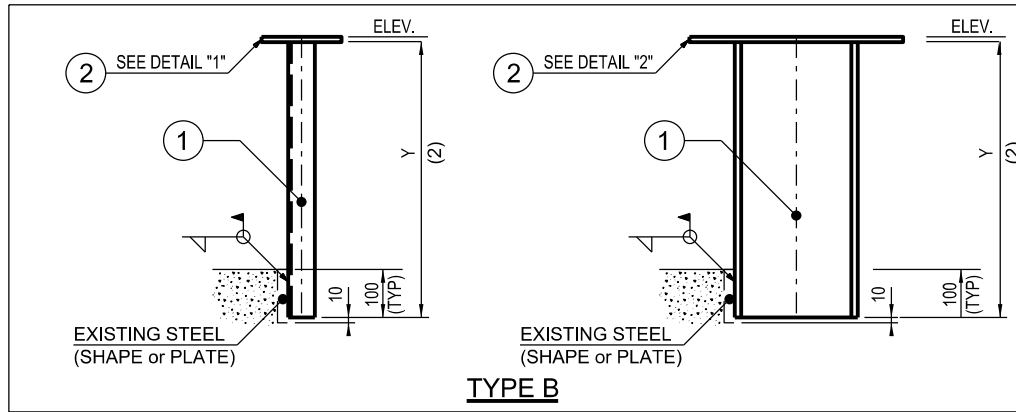
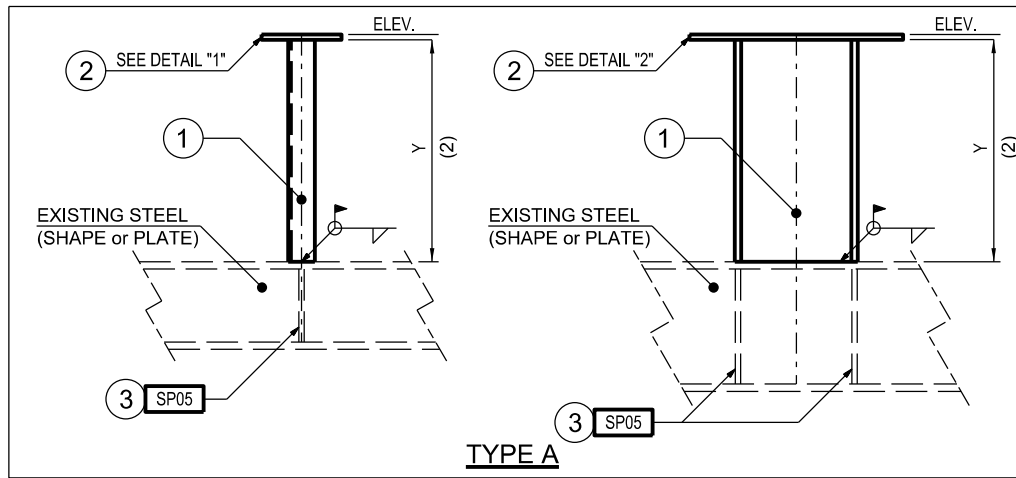
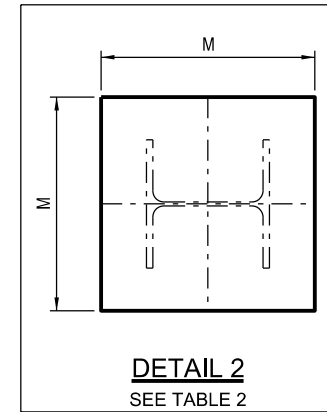
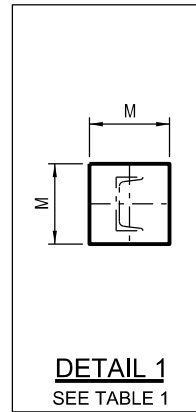
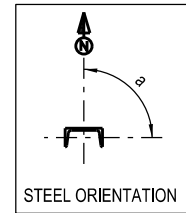


TABLE 1	
SHAPE	M
MC100/MC125	150
MC150/ UC152*23	200
UC152*30	250
UC203*46	300
UC254*73	400

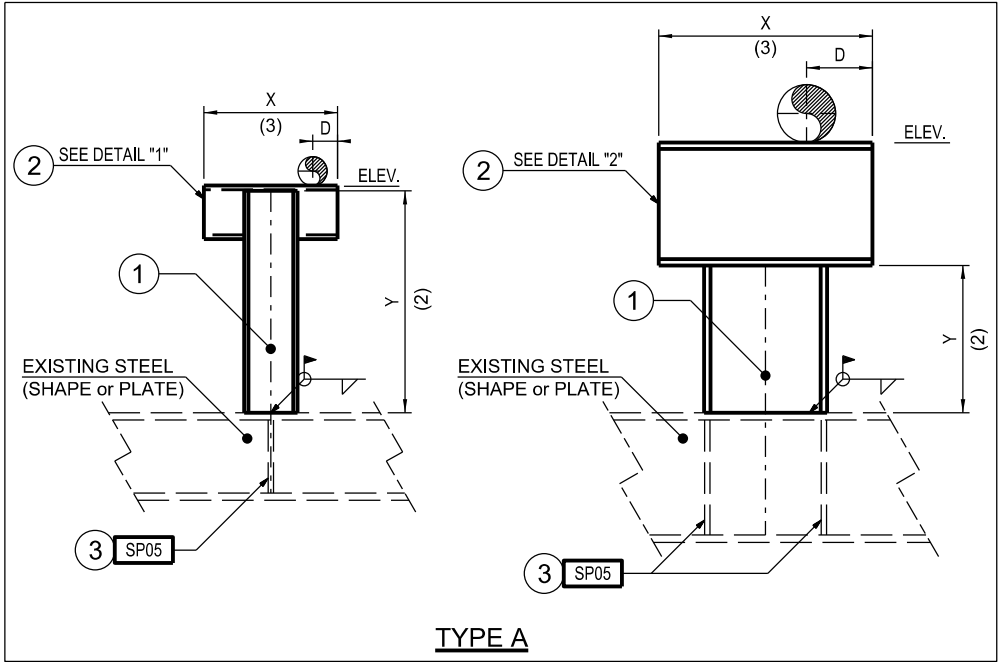
TABLE 2 - P (kN ) (1)								
SHAPE Y mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73	
500	6.4	8.6	18.6	36.0	-	-	-	
1000	3.3	4.4	9.5	18.7	37.0	-	-	
1500	2.2	2.9	6.4	12.6	25.1	43.3	-	
2000	1.6	2.2	4.8	9.5	19.0	32.8	56.4	



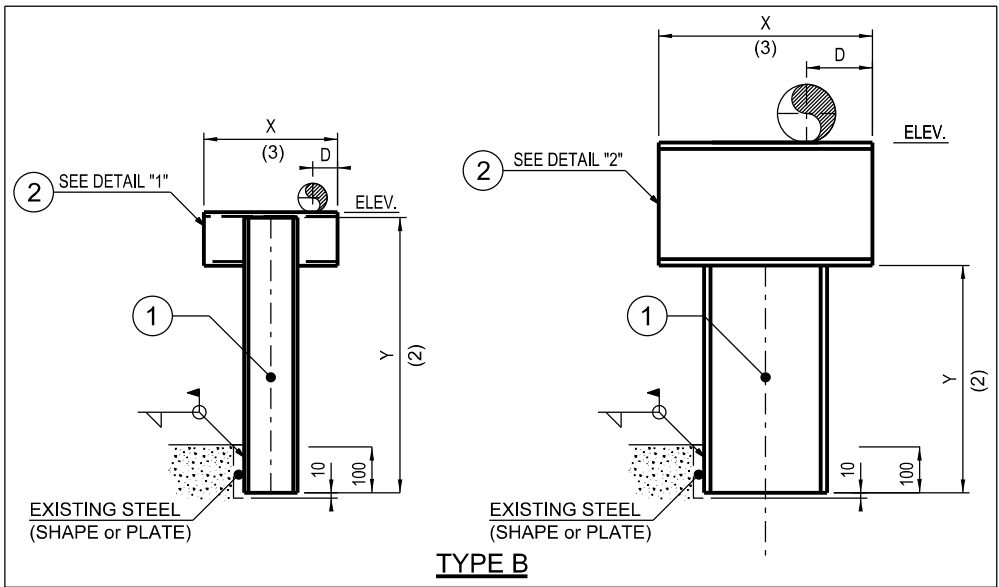
NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa.  
LOAD IS SUPPOSED TO BE APPLIED ON THE SECTION'S NEUTRAL AXIS.  
2. Y DIMENSION IS LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
3	STIFFENER	2/4	REFER TO SP05	/	/	/	/	/	/	/	/	/
2	END PLATE	1	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	COLUMN	1	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36

Support Mark				Positional Mark			
SB02				ELEV a			
Technip				POST			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 02	1 of 1
				Project	Unit	Doc. Code & Serial No.	Page

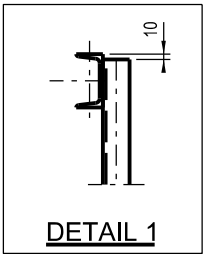


TYPE A

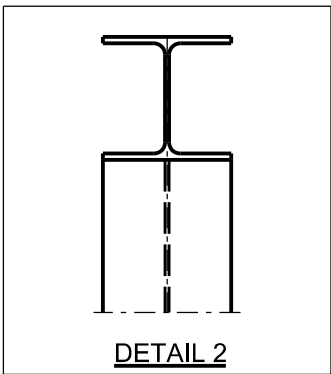


TYPE B

SHAPE Y mm	TABLE - P (kN ) (1)							
	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73	
500	0.9	1.8	3.3	8.6	20.8	41.7	-	
1000	0.7	1.3	2.2	4.9	11.2	22.2	42.9	
1500	/	/	/	3.7	8.0	15.5	29.6	
2000	/	/	/	/	6.5	12.1	23.0	



DETAIL 1



DETAIL 2

NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa. X = 800 FOR VALUES INDICATED.  
2. Y DIMENSION IS LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.  
3. X DIMENSION IS LIMITED FROM 200 TO 800.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
③	STIFFENER	2/4	REFER TO SP05	/	/	/	/	/	/	/	/	/
②	BEAM	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36
①	COLUMN	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

Support Mark				Positional Mark			
SB03				ELEV a			
Technip				T - SHAPE STRUCTURE			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 03	1 of 1
Project		Unit		Doc. Code & Serial No.		Page	

SB03

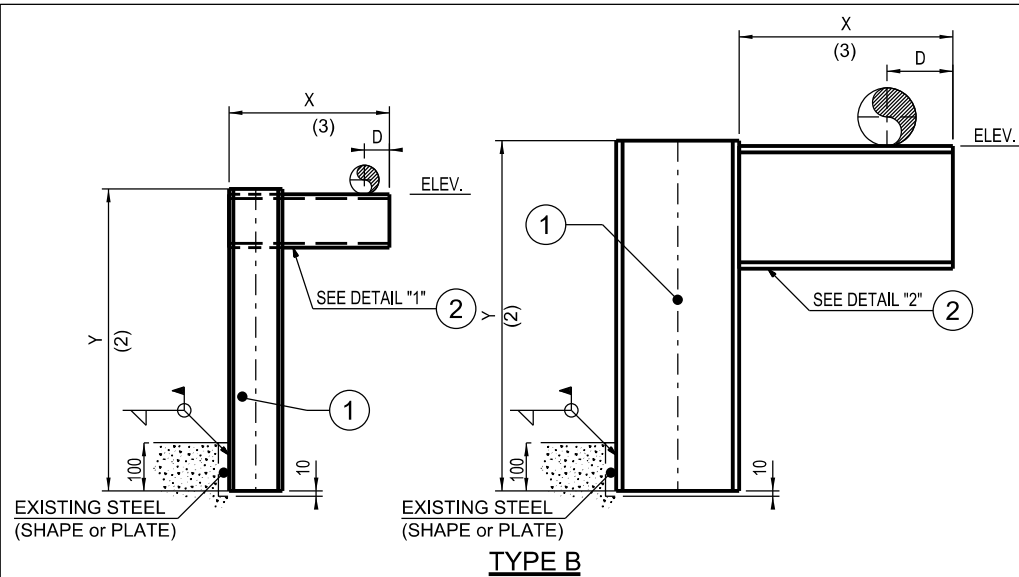
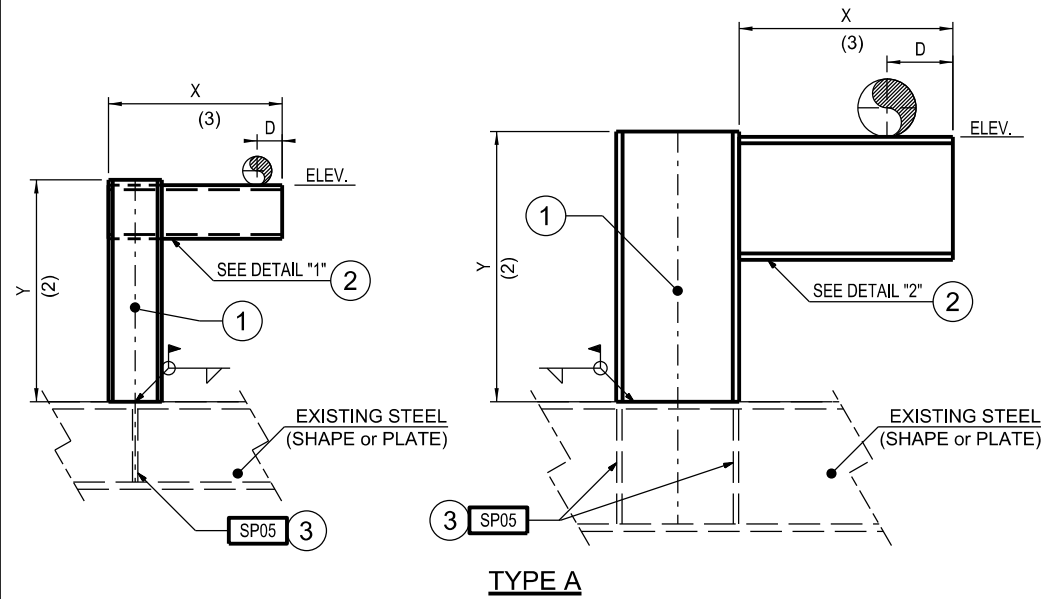
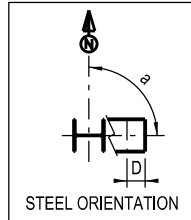
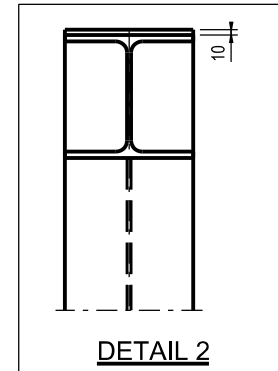
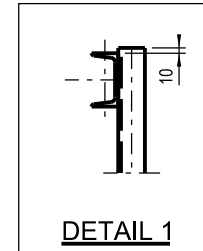


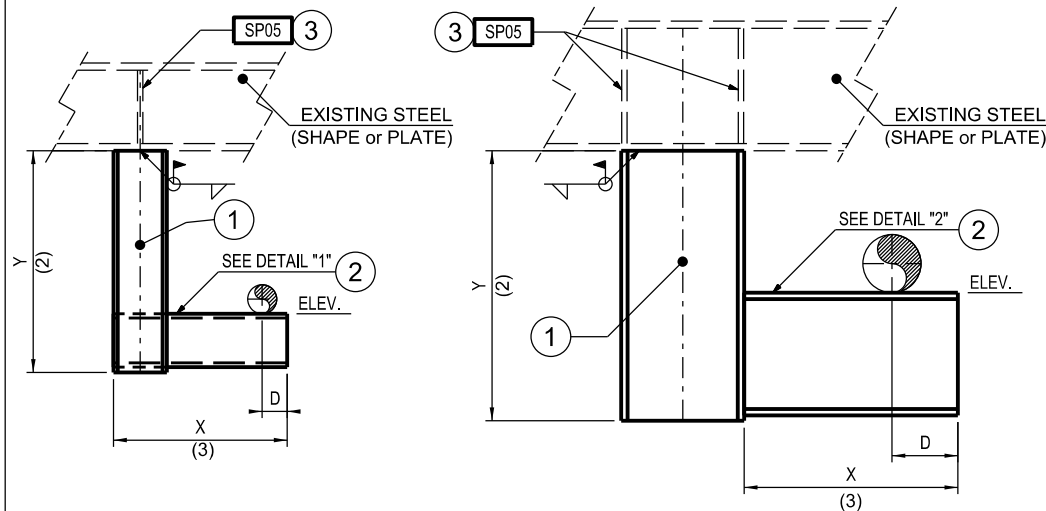
TABLE - P (kN ) (1)								
SHAPE Y mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73	
500	0.5	1.0	1.8	4.9	12.3	25.1	49.4	
1000	0.4	0.8	1.3	2.9	6.9	14.0	27.8	
1500	/	/	/	2.2	5.0	9.9	19.7	
2000	/	/	/	1.9	4.1	7.9	15.5	



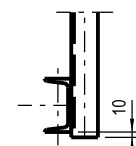
NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
2.  $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .  $X = 800$  FOR VALUES INDICATED.  
3. Y DIMENSION IS LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.  
4. THIS SUPPORT SHALL NOT BE USED FOR PIPES WITH LINE STOP.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
3	STIFFENER	2/4	REFER TO SP05	/	/	/	/	/	/	/	/	/
2	BEAM	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	COLUMN	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36

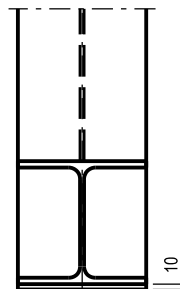
Support Mark				Positional Mark			
SB04				ELEV a			
Technip				L - SHAPE STRUCTURE			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 04	1 of 2
				Project	Unit	Doc. Code & Serial No.	Page



**TYPE C**



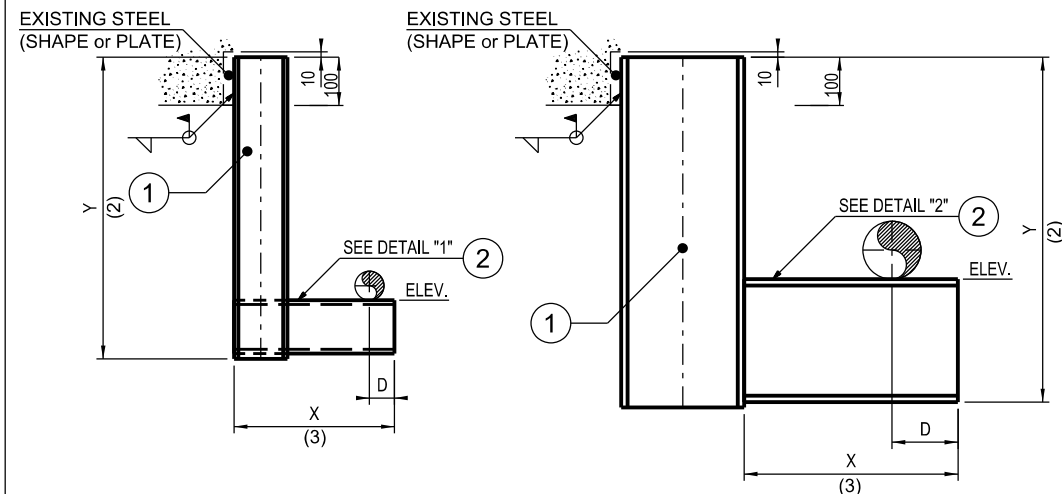
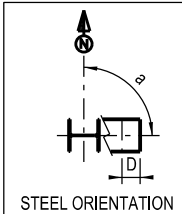
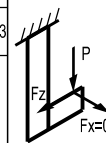
**DETAIL 1**



**DETAIL 2**

- NOTES:
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa. X = 800 FOR VALUES INDICATED.
  2. Y DIMENSION IS LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.
  3. X DIMENSION IS LIMITED FROM 200 TO 800.
  4. THIS SUPPORT SHALL NOT BE USED FOR PIPES WITH LINE STOP.

TABLE - P (kN ) (1)							
SHAPE Y mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
500	0.5	1.0	1.8	4.9	12.3	25.1	49.4
1000	0.4	0.8	1.3	2.9	6.9	14.0	27.8
1500	/	/	/	2.2	5.0	9.9	19.7
2000	/	/	/	1.9	4.1	7.9	15.5



**TYPE D**

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
③	STIFFENER	2/4	REFER TO SP05	/	/	/	/	/	/	/	/	/
②	BEAM	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36
①	COLUMN	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

Support Mark

**SB04** TYPE SHAPE D X Y

Positional Mark

**ELEV** a

**Technip**

**L - SHAPE STRUCTURE**

**SB04**

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1394 - 04	2 of 2	1
Project	Unit	Doc. Code & Serial No.	Page	Rev.

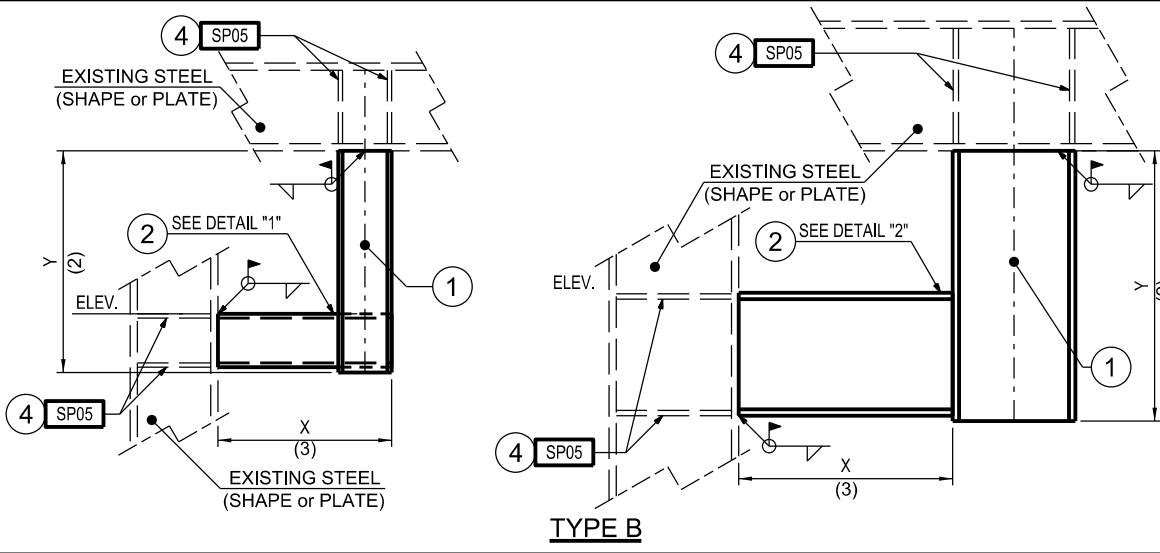
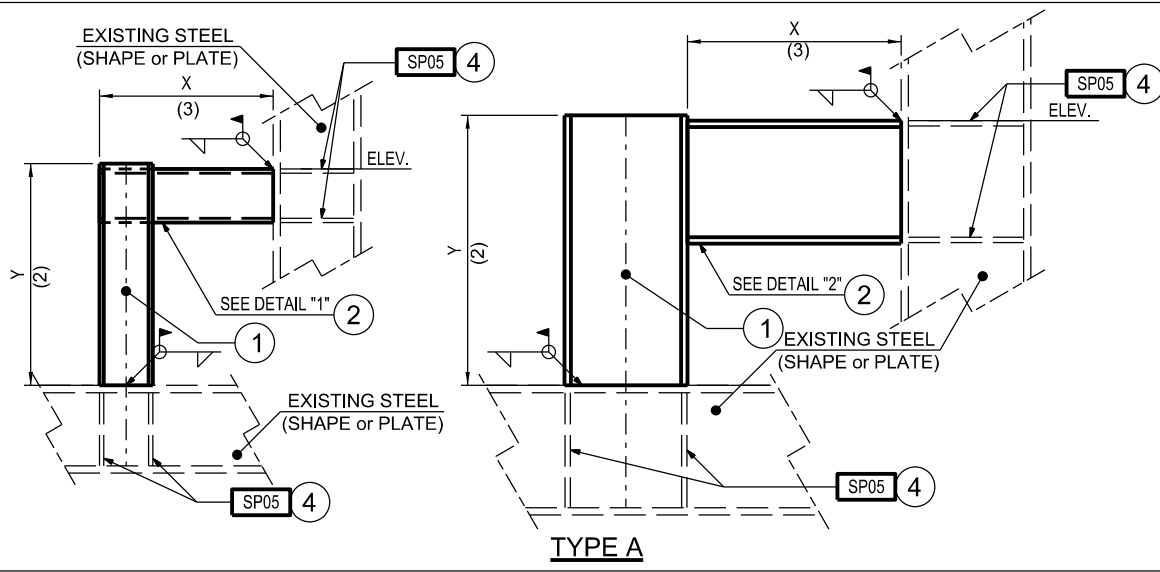
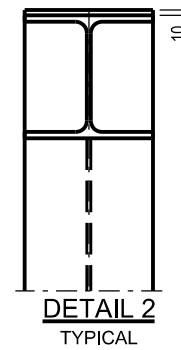
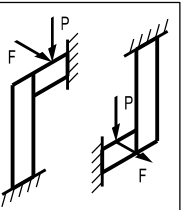
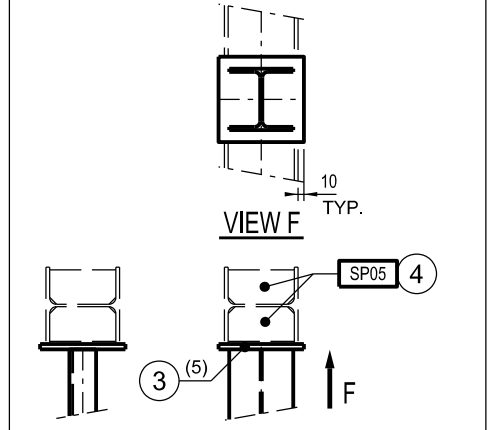


TABLE - P (kN) (1)							
SHAPE Y mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
500	8.3	11.3	26.0	47.5	-	-	-
1000	6.2	8.4	19.4	41.2	-	-	-
1500	4.9	6.6	15.0	28.7	57.6	-	-
2000	4.6	6.2	14.1	25.9	51.3	-	-



### ALTERNATE



- NOTES:
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa. X = 800 FOR VALUES INDICATED.  
LOAD IS SUPPOSED TO BE APPLIED AT THE MOST CRITICAL POINT ON HORIZONTAL BEAM.
  2. Y DIMENSION IS LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.
  3. X DIMENSION IS LIMITED FROM 200 TO 800.
  4. THIS SUPPORT SHALL NOT BE USED FOR PIPES WITH LINE STOP.
  5. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
4	STIFFENER	4/8	REFER TO SP05	/	/	/	/	/	/	/	/	/
3	PLATE	1	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
2	BEAM	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	COLUMN	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36

Support Mark				Positional Mark			
SB05 TYPE SHAPE X Y				ELEV a			
Technip				CHAIR STRUCTURE			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 05	1 of 1
Project				Unit			
Doc. Code & Serial No.				Page			
Rev.				1			



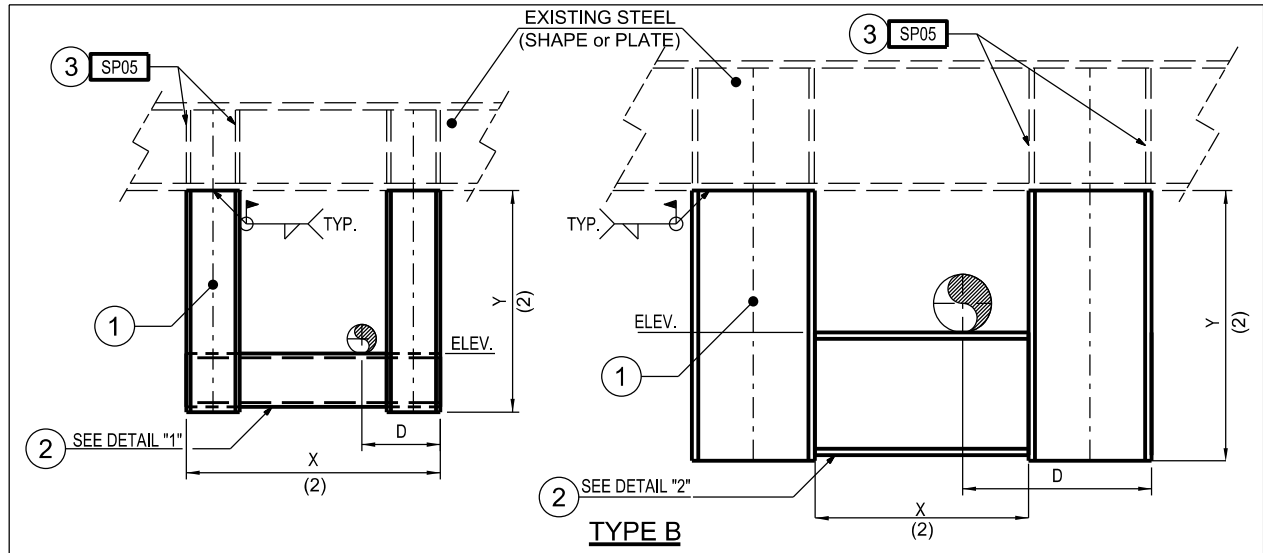
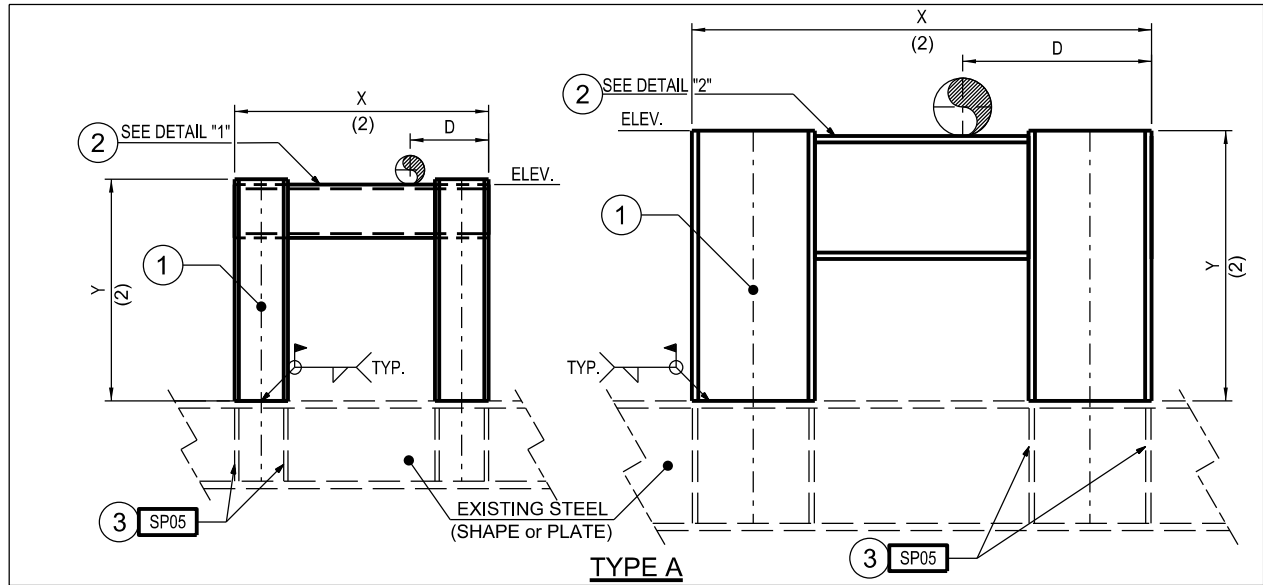
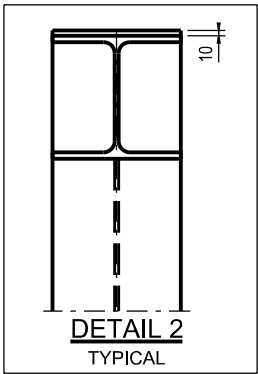
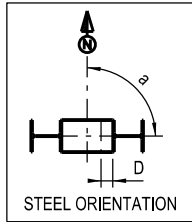
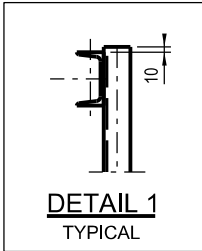
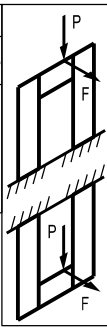


TABLE - P (kN ) (1)							
SHAPE Y mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
500	4.8	8.8	14.7	24.1	47.0	-	-
1000	3.4	6.1	10.3	20.8	42.0	-	-
1500	2.2	4.0	6.6	13.7	27.0	48.0	-
2000	1.7	2.9	4.9	10.2	20.0	36.0	-



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa. X = 800 FOR VALUES INDICATED.  
LOAD IS SUPPOSED TO BE APPLIED AT THE MOST CRITICAL POINT ON HORIZONTAL BEAM.  
2. X & Y DIMENSIONS ARE LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
3	STIFFENER	8	REFER TO SP05	/	/	/	/	/	/	/	/	/
2	BEAM	1	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	COLUMN	2	SEE TABLE	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

Support Mark

SB06 TYPE SHAPE D X Y

Positional Mark

ELEV a

**Technip**

U - SHAPE STRUCTURE

SB06

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

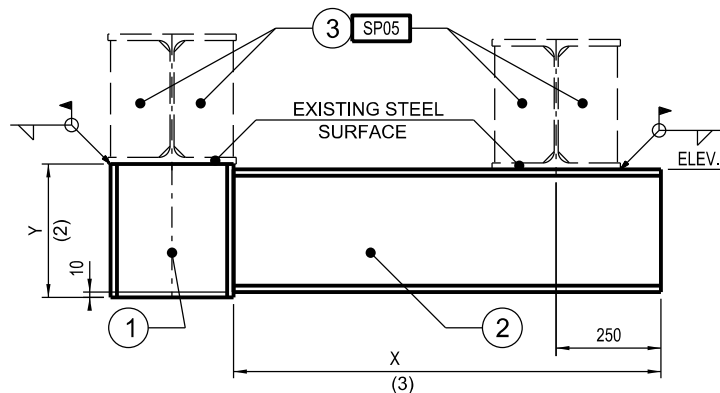
XXXXXX  
Project

000  
Unit

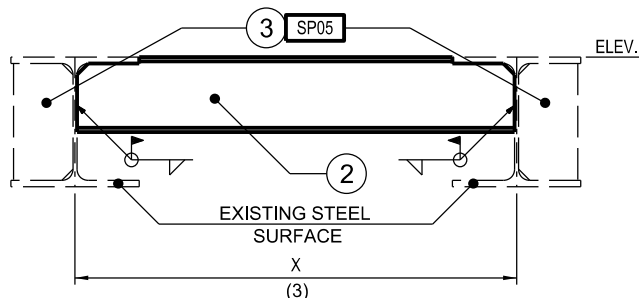
STC - 1394 - 06  
Doc. Code & Serial No.

1 of 1  
Page

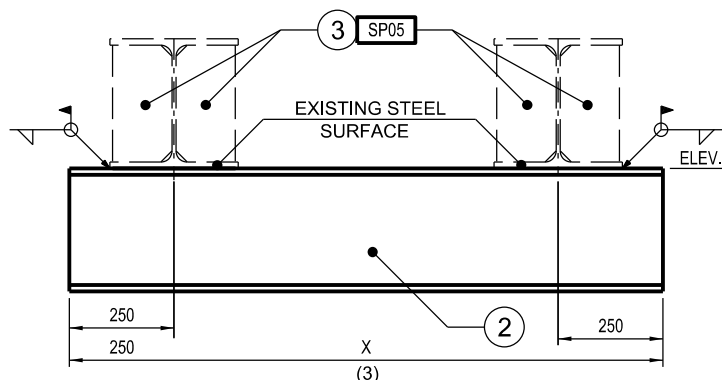
1  
Rev.



TYPE A

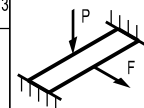


TYPE B

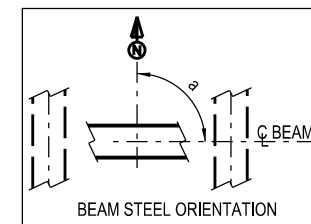


TYPE C

TYPE A / TABLE - P (kN) (1)							
SHAPE Y mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
200	5.8	8.1	18.8	29.0	57.7	-	-
500	5.7	7.9	18.6	29.0	58.8	-	-
1000	3.7	4.9	11.0	22.7	45.7	-	-
1500	2.9	3.9	8.6	18.4	36.8	-	-
2000	2.9	3.9	8.5	18.4	36.0	-	-



TYPE B & C / TABLE - P (kN) (1)							
SHAPE X mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
800	11	28.1	48.6	73.0	-	-	-
1000	9	22.5	39.0	58.4	-	-	-
1500	7.7	15.0	26.0	38.9	-	-	-
2000	5.8	11.2	19.5	29.2	59.4	-	-



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
2.  $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .  
3. Y DIMENSION IS LIMITED FROM 200 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.  
4. X DIMENSION IS LIMITED FROM 800 TO 2000. TO BE ADJUSTED AT ERECTION IF NECESSARY.  
5. LOADS ARE DEFINED CONSIDERING  $X = 2000$ .

Support Mark

**SB07** TYPE SHAPE X Y

Positional Mark

**ELEV** a

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
③	STIFFENER	2/4	REFER TO SP05	/	/	/	/	/	/	/	/	/
②	BEAM	1	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36
①	COLUMN	1	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36
				MATCL								

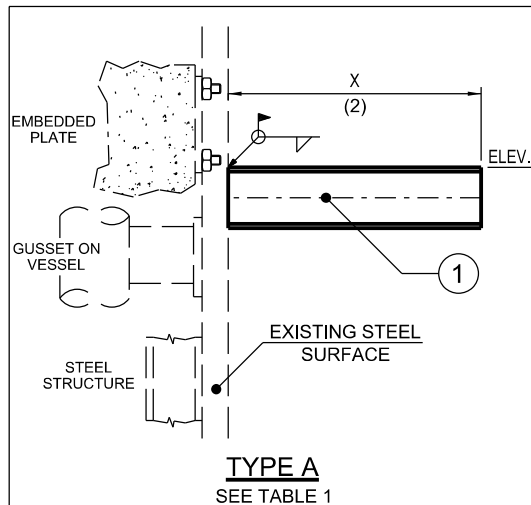
**Technip**

ADDITIONAL INTERMEDIATE BEAM

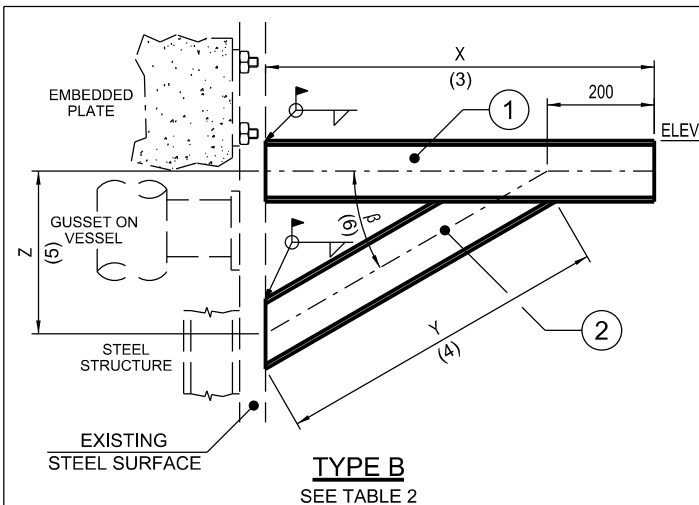
**SB07**

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

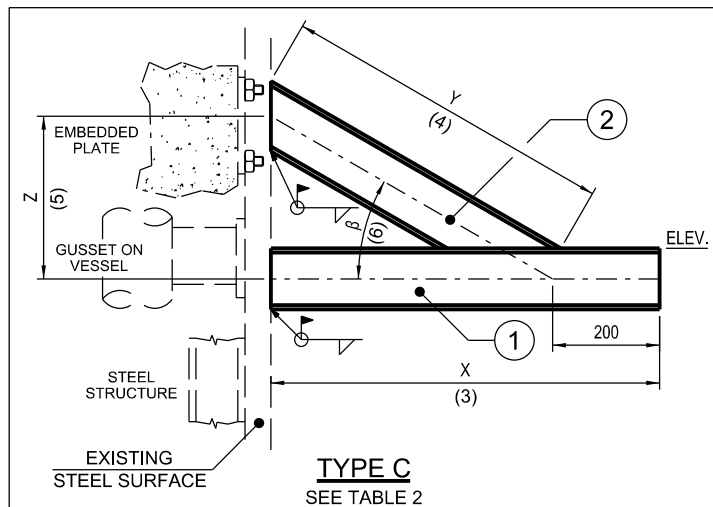
XXXXXX	000	STC - 1394 - 07	1 of 1	1
Project	Unit	Doc. Code & Serial No.	Page	Rev.



**TYPE A**  
SEE TABLE 1



**TYPE B**  
SEE TABLE 2



**TYPE C**  
SEE TABLE 2

TABLE 1 - P (kN) (1)							
SHAPE X mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
200	5.8	12.1	21.0	50.8	-	-	-
500	2.6	5.1	8.6	20.3	41.3	-	-
1000	1.5	2.8	4.6	10.0	20.6	36.0	-

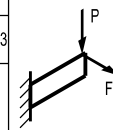
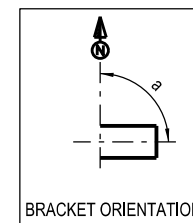
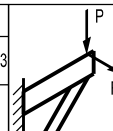
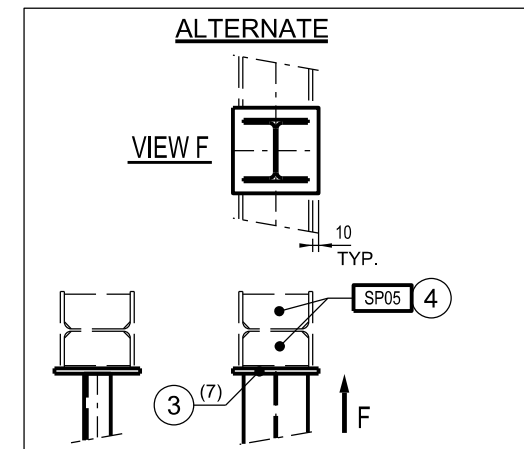


TABLE 2 - P (kN) (1)							
SHAPE X mm	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73
1000	6.3	10.8	17.4	33.4	-	-	-
1500	4.0	7.0	11.4	22.8	43.4	-	-
2000	3.0	5.2	8.4	17.0	33.0	55.6	-



BRACKET ORIENTATION



- NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
2.  $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .  
3. X DIMENSION FOR TYPE A IS LIMITED FROM 200 TO 1000.  
4. X DIMENSION FOR TYPES B & C ARE LIMITED FROM 1000 TO 2000.  
5. Y DIMENSION (APPROX.) IS  $X \times 1.15$ . TO BE ADJUSTED AT ERECTION.  
6. Z DIMENSION IS  $(X - 200) \times 0.57$ .  
7. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.  
8. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
④	STIFFENER	4/8	REFER TO SP05	/	/	/	/	/	/	/	/	/
③	PLATE	1/2	PLATE Thk, 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
②	BRACE	1	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36
①	BEAM	1	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

Support Mark				Positional Mark			
<b>SB08</b>	TYPE	SHAPE	X β	ELEV	a		
<b>Technip</b>				SINGLE BRACKET		SB08	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXX XXX	000	STC - 1394 - 08	1 of 1
Project				Unit		Doc. Code & Serial No.	Page

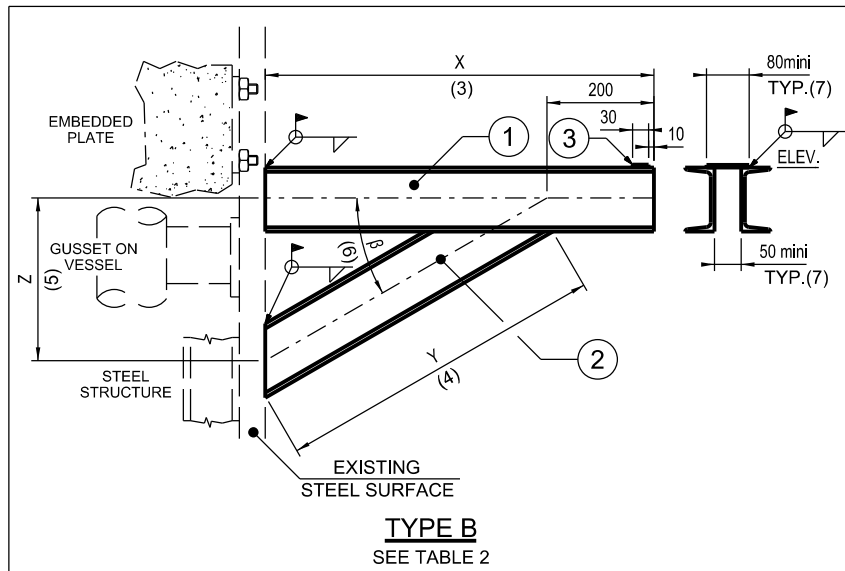
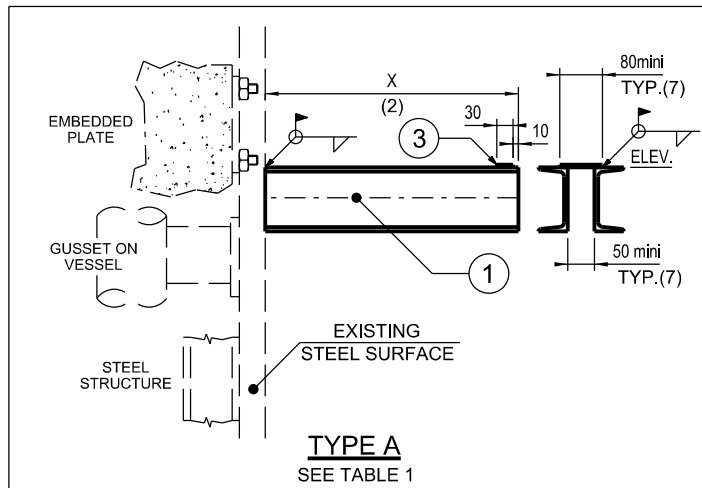


TABLE 1 - P (kN ) (1)				
SHAPE X mm	MC100	MC125	MC150	MC 200
500	8.1	15.7	27.0	41.3
1000	4.1	7.8	13.6	20.7

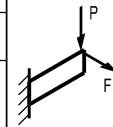
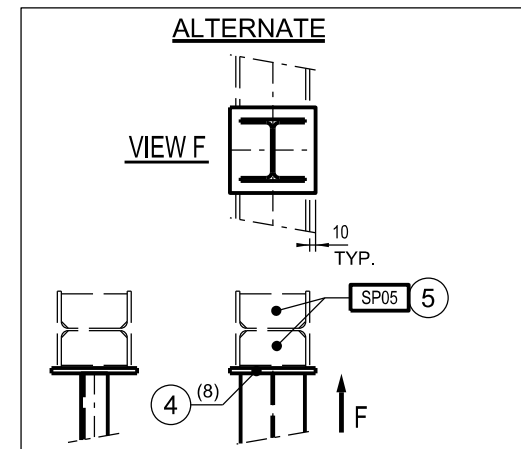
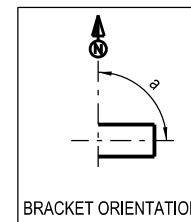
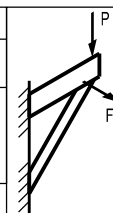


TABLE 2 - P (kN ) (1)				
SHAPE X mm	MC100	MC 125	MC 150	MC 200
1000	12.2	21.0	33.8	49.0
1500	7.8	13.4	21.9	32.0
2000	5.7	9.9	16.1	23.7



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
 $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .  
2. X DIMENSION FOR TYPE A IS LIMITED FROM 200 TO 1000.  
3. X DIMENSION FOR TYPE B IS LIMITED FROM 1000 TO 2000.  
4. Y DIMENSION (APPROX.)  $X \times 1.15$ . TO BE ADJUSTED AT ERECTION.  
5. Z DIMENSION IS  $(X - 200) \times 0.57$ .  
6. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.  
7. DIMENSIONS TO BE ADAPTED ON SITE AS PER SPRING BOX ROD SIZE.  
8. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

5	STIFFENER	4/8	REFER TO SP05	/	/	/	/	/	/	/	/	
4	PLATE	1/2	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	
3	STIFFENER	1	FLAT BAR 30 x 5	A36	A36	A36	A36	A36	A36	A36	A36	
2	BRACE	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	
1	BEAM	2	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL

MATCL

Support Mark				Positional Mark			
SB09				ELEV a			
TYPE				SHAPE X β			
Technip				DOUBLE BRACKET FOR SPRING HANGER INSTALLATION			
STANDARD CONSTRUCTION DRAWING				SB09			
PLANT DESIGN AND PIPING				XXX XXX			
Project				000			
Unit				STC - 1394 - 09			
Doc. Code & Serial No.				1 of 1			
Page				1			
Rev.							

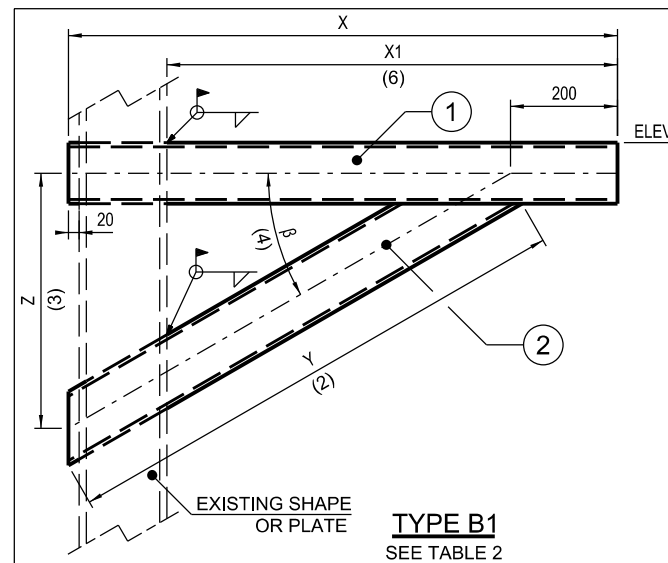
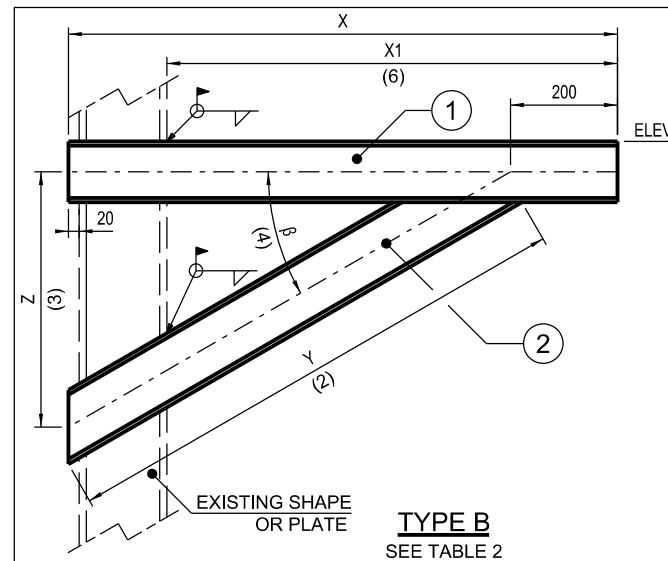
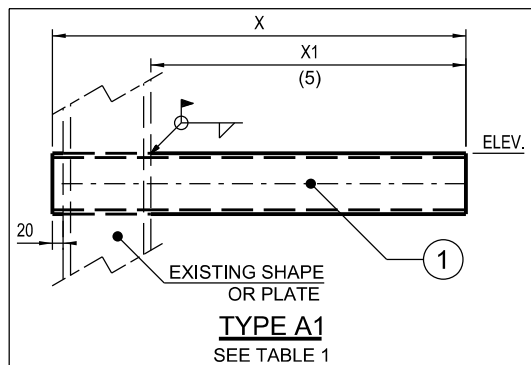
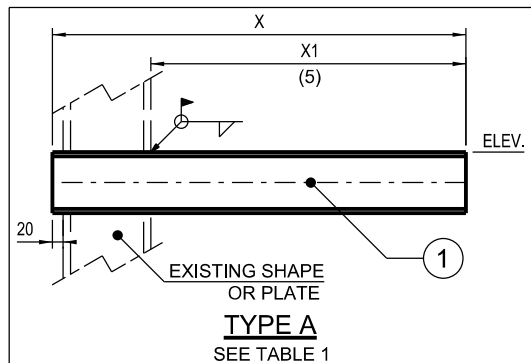
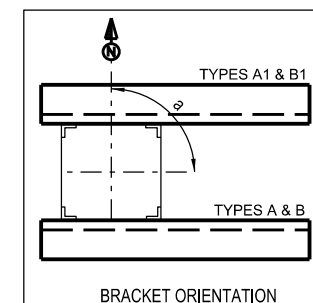


TABLE 1 - P (kN) (1)				
SHAPE X1 mm	MC100	MC125	MC150	
500	2.6	4.9	8.2	
1000	2.0	3.9	6.8	

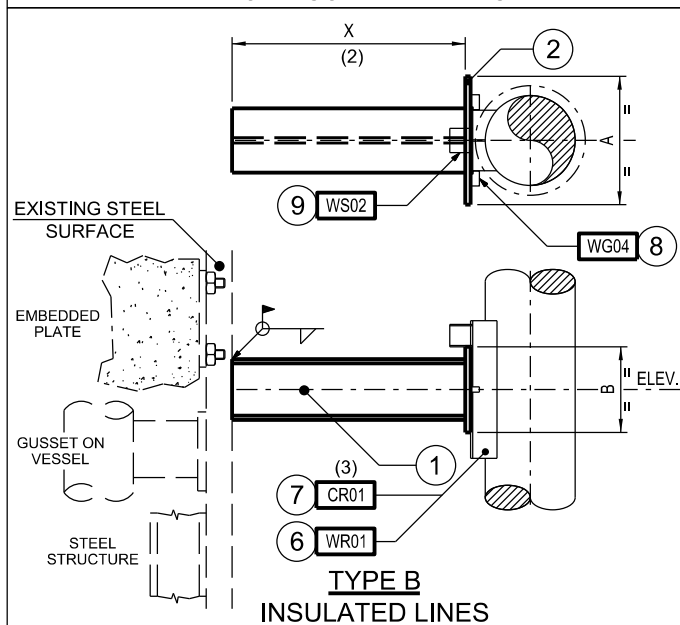
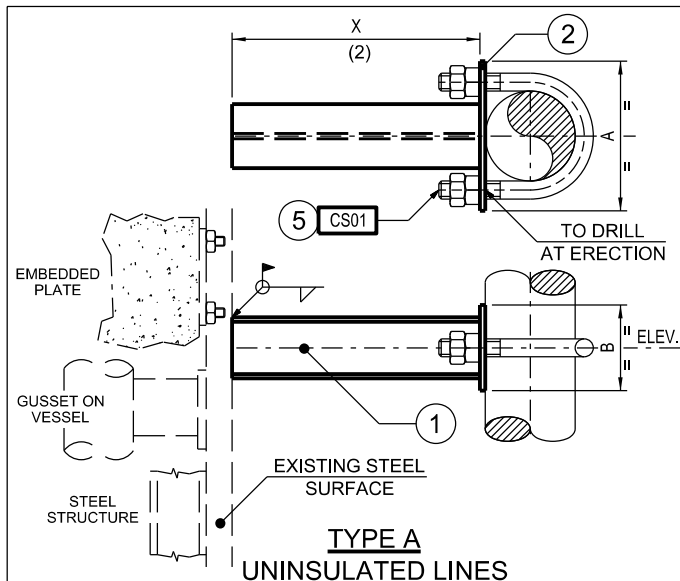
TABLE 2 - P (kN) (1)				
SHAPE X1 mm	MC 100	MC 125	MC 150	
1000	6.1	10.5	17.0	
1500	3.9	6.7	11.0	
2000	2.8	4.9	8.0	



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa.  
2. Y DIMENSION (APPROX.) X x 1.15. TO BE ADJUSTED AT ERECTION.  
3. Z DIMENSION IS (X - 200) x 0.57.  
4. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.  
5. X1 DIMENSION FOR TYPES A & A1 IS LIMITED FROM 200 TO 1000.  
6. X1 DIMENSION FOR TYPES B & B1 IS LIMITED FROM 1000 TO 2000.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
②	BRACE	1	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36
①	BEAM	1	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36
				MATCL								

Support Mark				Positional Mark			
<b>SB10</b> TYPE SHAPE X β				ELEV a			
<b>Technip</b>				<b>LATERALLY FIXED BRACKET FOR VERTICAL PIPE</b>			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 10	1 of 1
Project		Unit		Doc. Code & Serial No.		Page	Rev.

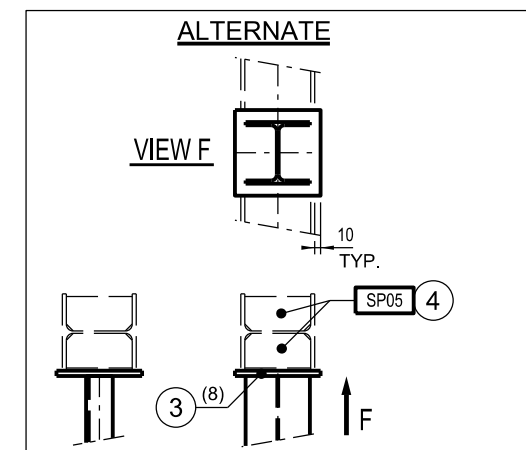
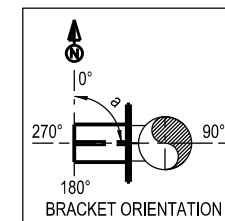
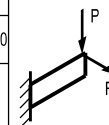


9	STOP	1	REFER TO WS02	/	/	/	/	/	/	/	/	
8	HOLD DOWN	1	REFER TO WG04	/	/	/	/	/	/	/	/	
7	SHOE	1	REFER TO CR01	/	/	/	/	/	/	/	/	
6	SHOE	1	REFER TO WR01	/	/	/	/	/	/	/	/	
5	U-BOLT	1	REFER TO CS01	/	/	/	/	/	/	/	/	
4	STIFFENER	4	REFER TO SP05	/	/	/	/	/	/	/	/	
3	PLATE	1	PLATE Thk, 10	A36	A36	A36	A36	A36	A36	A36	A36	
2	END PLATE	1	PLATE Thk, T	A36	A36	A36	A36	A36	A36	A36	A36	
1	BEAM	1	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL

MATCL

TABLE 2				
DIAM		A	B	T
ND	Inch			
50	2"	200	130	5
80	3"	200	160	5
100	4"	210	160	10
150	6"	250	160	10

TABLE 1 - P (KN) (1)					
SHAPE	MC100	MC125	MC150	UC152*23	UC152*30
X mm					
200	5.8	12.1	21.0	50.8	-
500	2.6	5.1	8.6	20.3	41.3
1000	1.5	2.8	4.6	10.1	20.6



**NOTES:**

1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .
2.  $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .
3. X DIMENSION IS LIMITED FROM 200 TO 1000, TO BE ADJUSTED AT ERECTION.
4. WE03 SHALL BE USED FOR CLAMPED PIPE SHOE.
5. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

Support Mark

**SB11** DIAM TYPE SHAPE X

Positional Mark

**ELEV** a

**Technip**

**BRACKET FOR VERTICAL PIPE  
FOR DIAM 2" TO 6"**

**SB11**

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1394 - 11	1 of 1	1
Project	Unit	Doc. Code & Serial No.	Page	Rev.

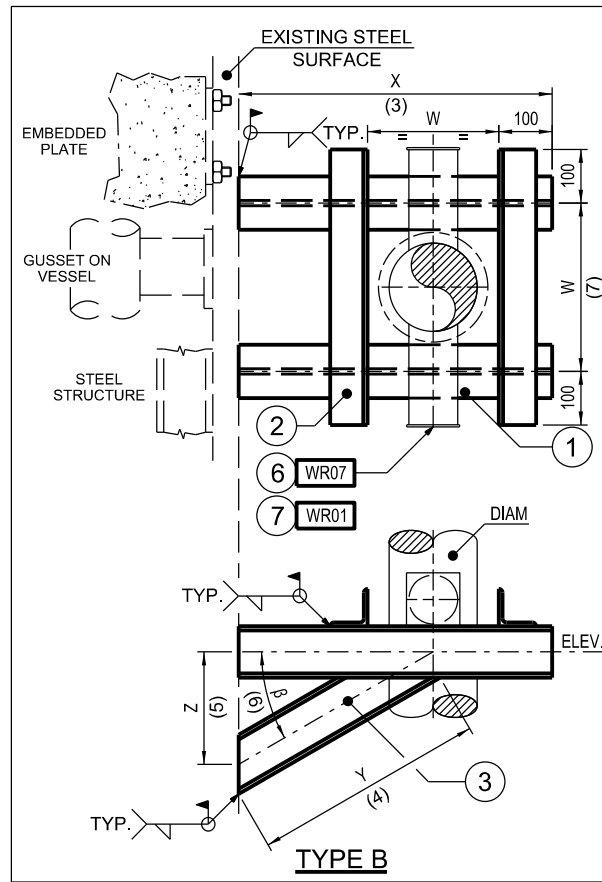
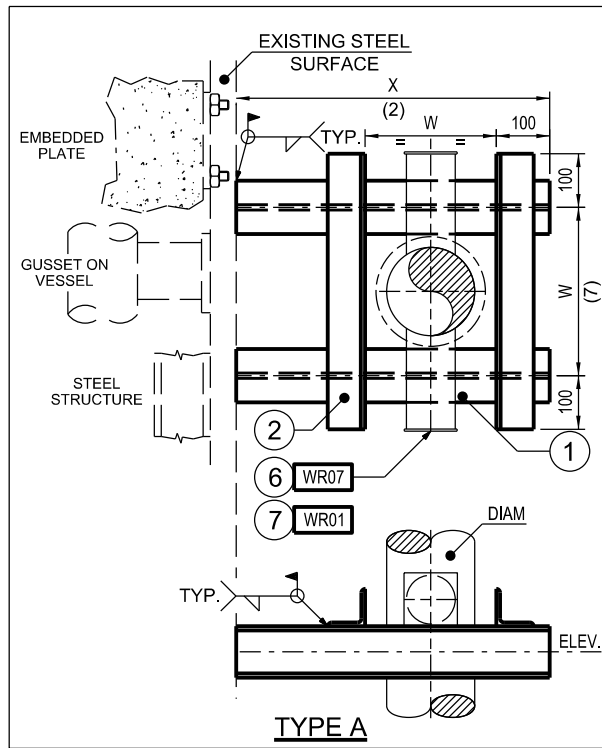
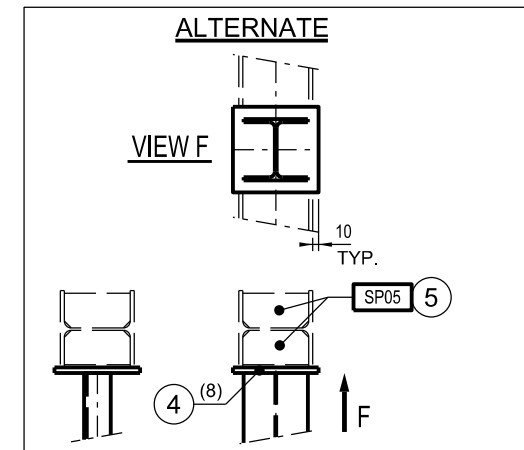
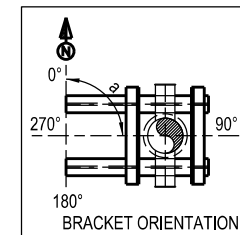


TABLE 1 - P (kN ) (1)								
SHAPE	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73	
X mm								
200	5.8	12.1	21.0	50.8	-	-	-	
500	2.6	5.1	8.6	20.3	41.3	-	-	
1000	1.5	2.8	4.6	10.0	20.6	36.0	-	

TABLE 2 - P (kN ) (1)								
SHAPE	MC100	MC125	MC150	UC152*23	UC152*30	UC203*46	UC254*73	
X mm								
1000	6.3	10.8	17.4	33.4	-	-	-	
1500	4.0	7.0	11.4	22.8	43.4	-	-	
2000	3.0	5.2	8.4	17.0	33.0	55.6	-	



NOTES:

1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
 $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .
2. X DIMENSION FOR TYPE A IS LIMITED FROM 200 TO 1000.
3. X DIMENSION FOR TYPE B IS LIMITED FROM 1000 TO 2000.
4. Y DIMENSION (APPROX.)  $X \times 1.15$ . TO BE ADJUSTED AT ERECTION.
5. Z DIMENSION IS  $(X - W/2 - 100) \times 0.57$ .
6. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.
7. FOR CHANNEL SHAPE, W IS INTERNAL DIMENSION.
8. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.
9. FOR HIGH TEMPERATURE CH,AH,SH SHOE TO BE PROVIDED ALONG WITH TRUNNION.

7	SHOE	1	REFER TO WR01	/	/	/	/	(9)	/	(9)	/	
6	TRUNNION	1	REFER TO WR07	/	/	/	/	/	/	/	/	
5	STIFFENER	8/16	REFER TO SP05	/	/	/	/	/	/	/	/	
4	PLATE	2/4	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	
3	BRACE	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	
2	CROSS BEAM	2	ISA 75	A36	A36	A36	A36	A36	A36	A36	A36	
1	BEAM	2	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL

MATCL

Support Mark

**SB12** DIAM TYPE SHAPE X W  $\beta$

Positional Mark

**ELEV** a

**Technip**

**DOUBLE BRACKET FOR VERTICAL PIPE  
FOR DIAM 8" TO 24"**

**SB12**

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1394 - 12	1 of 1	1
Project	Unit	Doc. Code & Serial No.	Page	Rev.

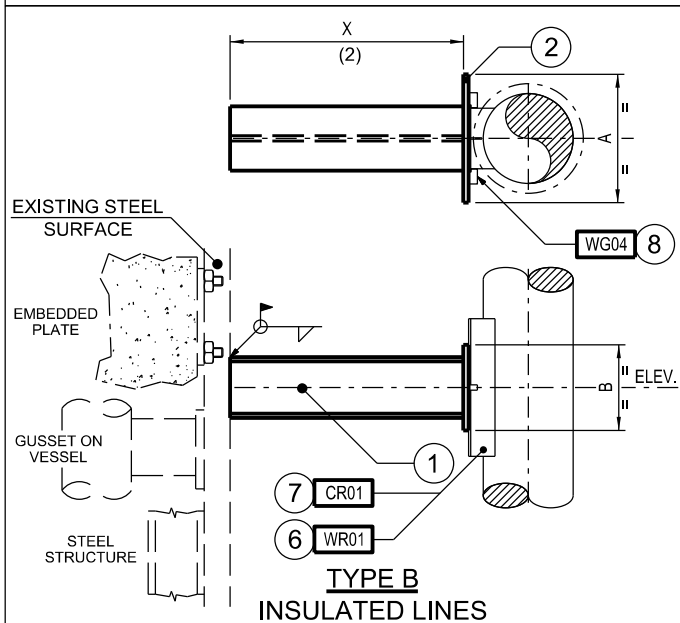
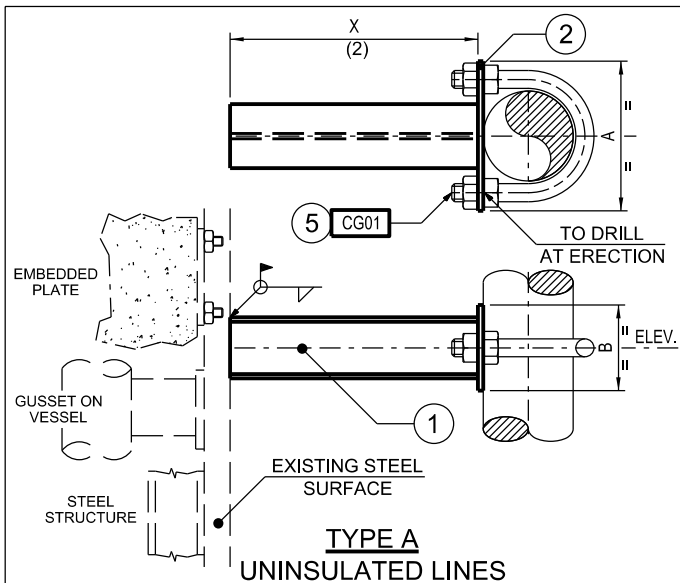
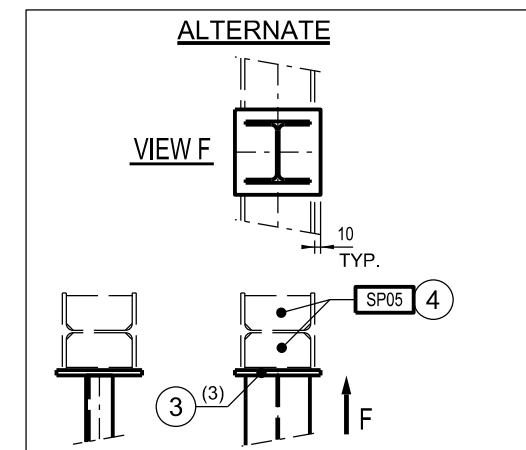
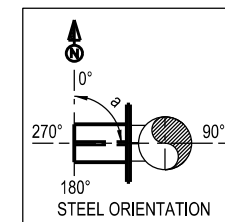


TABLE 1 - F (kN) (1)					
SHAPE X mm	MC100	MC125	MC150	UC152*23	UC152*30
200	2.0	4.2	7.35	17.7	36.1
500	0.9	1.7	3.0	7.1	14.4
1000	0.5	0.9	1.6	3.5	7.2

TABLE 2					
DIAM		A	B	T	
ND	Inch				
50	2"	200	130	5	
80	3"	200	160	5	
100	4"	210	160	10	
150	6"	250	160	10	



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
2.  $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .  
3. X DIMENSION IS LIMITED FROM 200 TO 1000, TO BE ADJUSTED AT ERECTION.  
4. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

8	HOLD DOWN	1	REFER TO WG04	/	/	/	/	/	/	/	/	
7	SHOE	1	REFER TO CR01	/	/	/	/	/	/	/	/	
6	SHOE	1	REFER TO WR01	/	/	/	/	/	/	/	/	
5	U-BOLT	1	REFER TO CG01	/	/	/	/	/	/	/	/	
4	STIFFENER	4	REFER TO SP05	/	/	/	/	/	/	/	/	
3	PLATE	1	PLATE Thk, 10	A36	A36	A36	A36	A36	A36	A36	A36	
2	END PLATE	1	PLATE Thk, T	A36	A36	A36	A36	A36	A36	A36	A36	
1	BEAM	1	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL

MATCL

Support Mark				Positional Mark			
<b>SB13</b>	DIAM	TYPE	SHAPE	X	ELEV	a	
<b>Technip</b>				<b>BIDIRECTIONAL VERTICAL GUIDE FOR DIAM 2" TO 6"</b>			<b>SB13</b>
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 13	1 of 1
Project				Unit		Doc. Code & Serial No.	Page
							Rev.



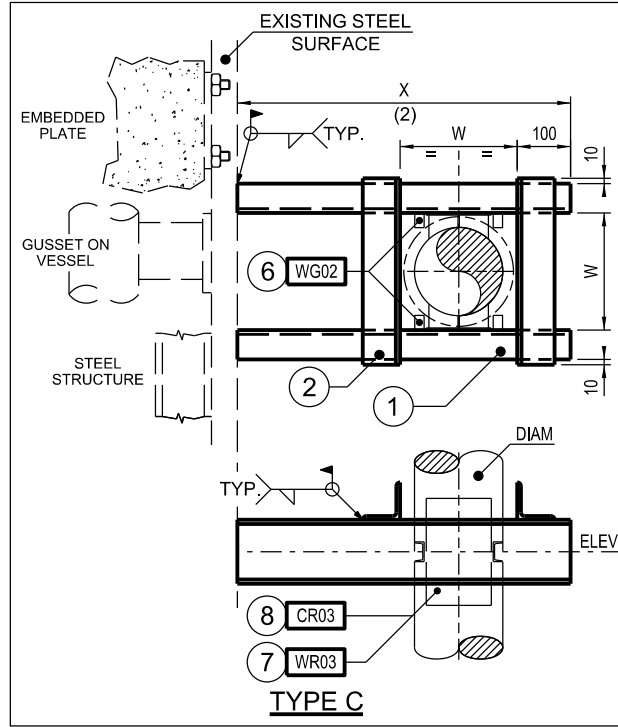
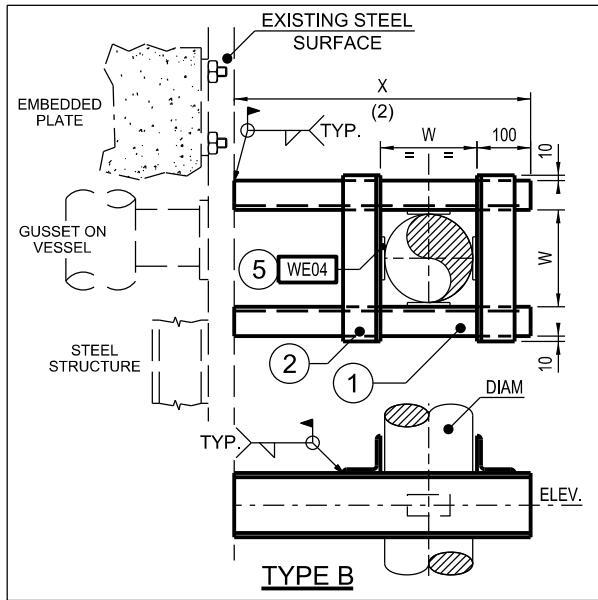
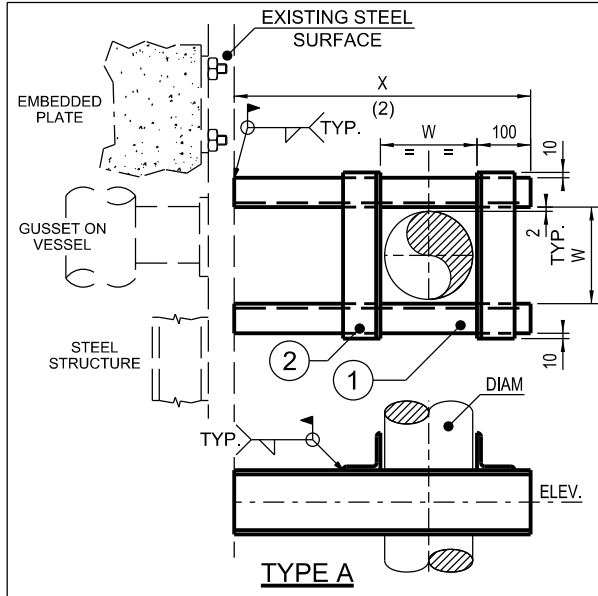
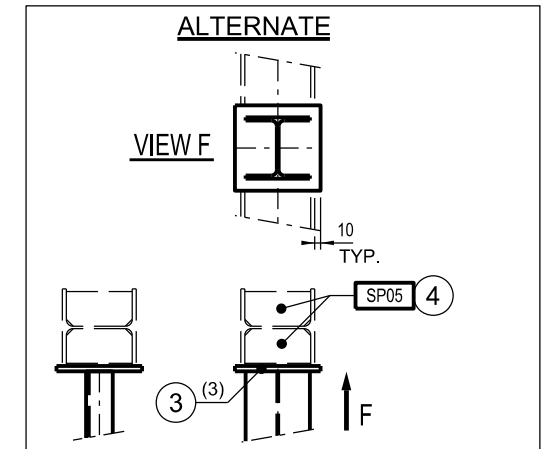
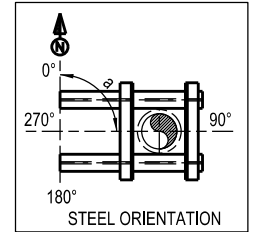


TABLE 1 - LOADS (kN ) TYPE A/B/C									
SHAPE	MC100		MC125		MC150		MC 200		
X mm	P	F	P	F	P	F	P	F	
	P	F	P	F	P	F	P	F	
500	5.2	1.8	9.8	3.4	16.4	5.7	26	9.1	
1000	4.0	1.4	7.8	2.7	13.6	4.7	20	7	

TABLE 2		
DIAM		2
ND	Inch	
200 TO 450	8" TO 18"	
500 TO 600	20" TO 24"	



NOTES:

1. DELETED
2. X DIMENSION FOR TYPES A / B / C IS LIMITED FROM 400 TO 1100. TO BE ADJUSTED AT ERECTION.
3. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
8	SHOE	1	REFER TO CR03	/	/	/	/	/	/	/	/	/
7	SHOE	1	REFER TO WR03	/	/	/	/	/	/	/	/	/
6	GUIDE	2	REFER TO WG02	/	/	/	/	/	/	/	/	/
5	WEDGE	4	REFER TO WE04	/	/	/	/	/	/	/	/	/
4	STIFFENER	8	REFER TO SP05	/	/	/	/	/	/	/	/	/
3	PLATE	2	PLATE Thk, 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
2	CROSS BEAM	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	BEAM	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

Support Mark

SB14 DIAM TYPE SHAPE X W β

Positional Mark

ELEV a

**Technip**

BIDIRECTIONAL VERTICAL GUIDE  
FOR DIAM 8" TO 24"

SB14

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1394 - 14	1 of 3	1
Project	Unit	Doc. Code & Serial No.	Page	Rev.

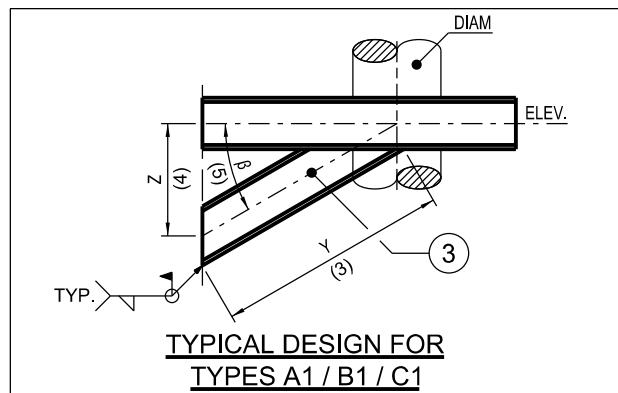
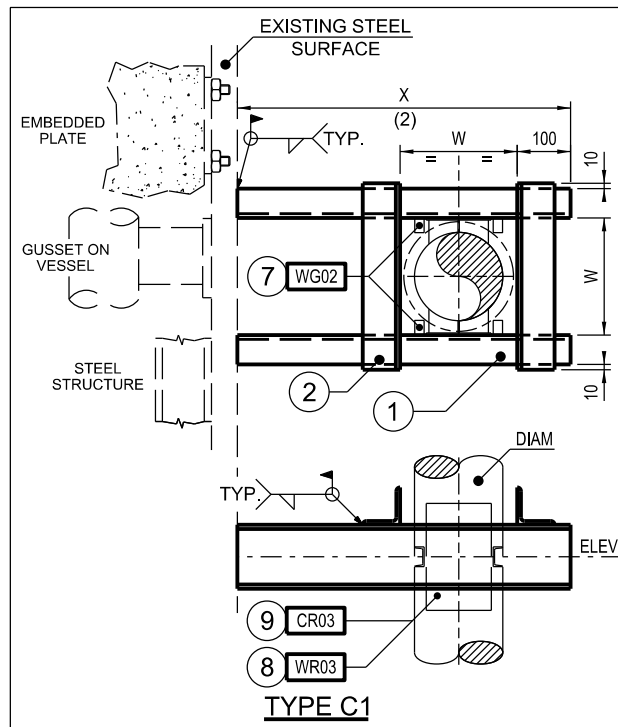
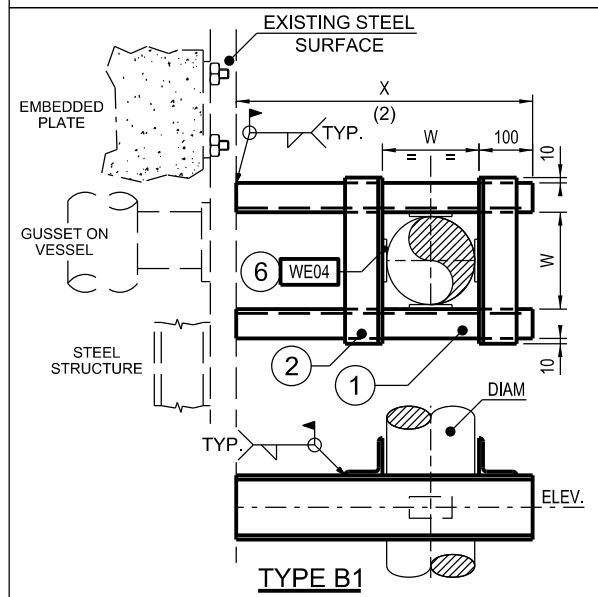
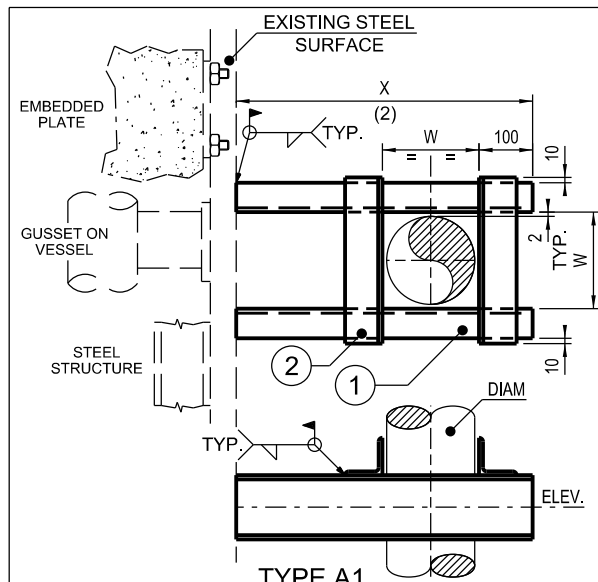


TABLE 1 - LOADS (kN ) TYPE A1/B1/C1								
SHAPE X mm	MC100		MC125		MC150		MC 200	
	P	F	P	F	P	F	P	F
1000	24	7.0	30	8.9	38	11.5	50	15
2000	14	4.0	18	4.9	22	6.5	29	8.5

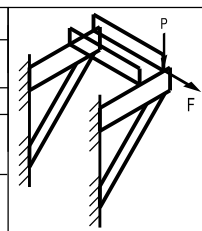
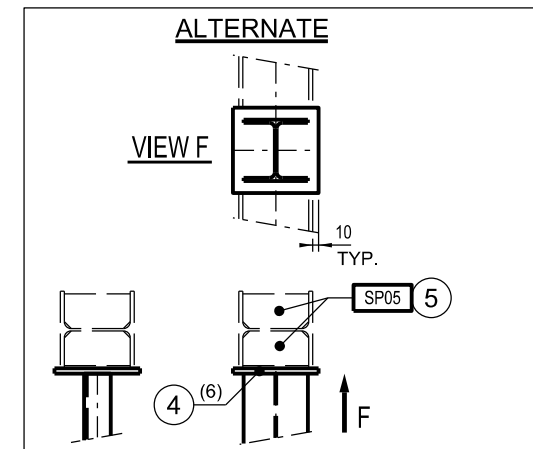
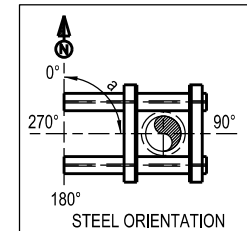


TABLE 2		
DIAM		(2)
ND	Inch	
200 TO 450	8" TO 18"	ISA 75
500 TO 600	20" TO 24"	ISA 100



(9)	SHOE	1	REFER TO CR03	/	/	/	/	/	/	/	/	/
(8)	SHOE	1	REFER TO WR03	/	/	/	/	/	/	/	/	/
(7)	GUIDE	2	REFER TO WG02	/	/	/	/	/	/	/	/	/
(6)	WEDGE	4	REFER TO WE04	/	/	/	/	/	/	/	/	/
(5)	STIFFENER	16	REFER TO SP05	/	/	/	/	/	/	/	/	/
(4)	PLATE	4	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
(3)	BRACE	2	SAME AS BEAM	A36	A36	A36	A36	A36	A36	A36	A36	A36
(2)	CROSS BEAM	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36
(1)	BEAM	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL

MATCL

NOTES:

1. DELETED
2. X DIMENSION FOR TYPES A1 / B1 / C1 IS LIMITED FROM 1100 TO 2000. TO BE ADJUSTED AT ERECTION.
3. Y DIMENSION (APPROX.) X x 1.15. TO BE ADJUSTED AT ERECTION.
4. Z DIMENSION IS (X - W/2 - 100) x 0.57.
5. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.
6. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

Support Mark

SB14 DIAM TYPE SHAPE X W β

Positional Mark

ELEV a

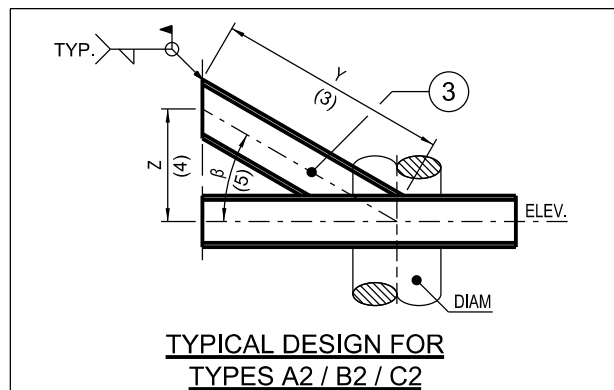
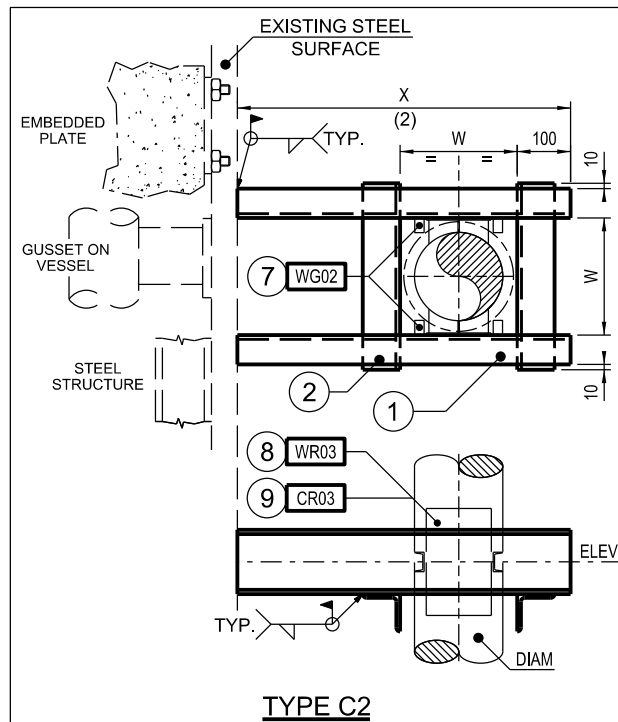
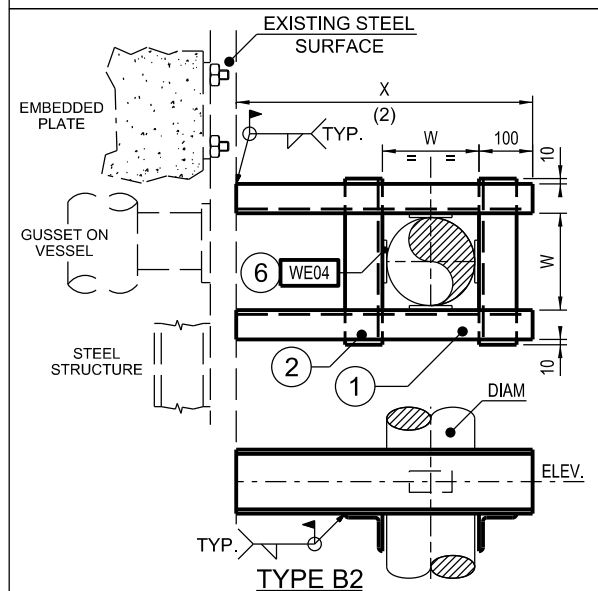
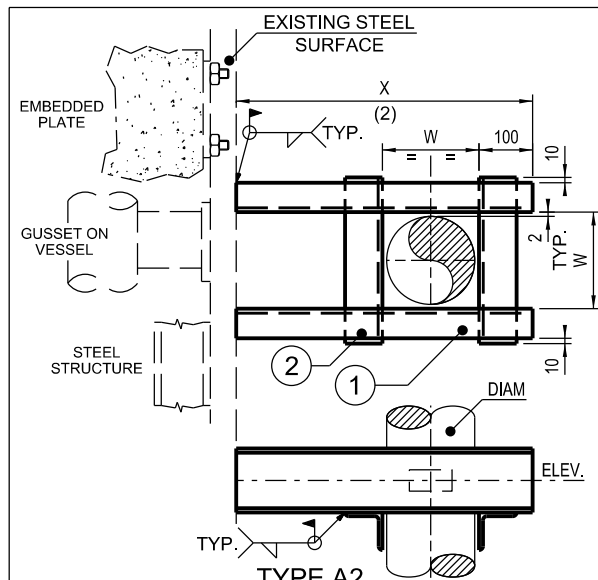
Technip

BIDIRECTIONAL VERTICAL GUIDE  
FOR DIAM 8" TO 24"

SB14

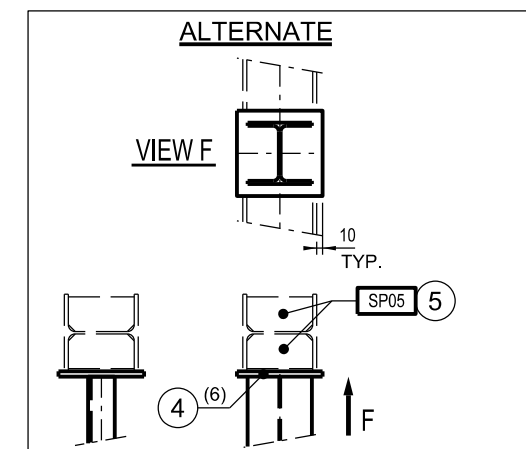
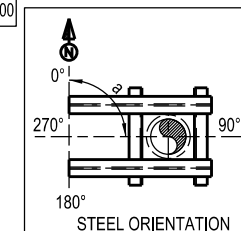
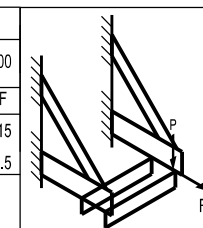
STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1394 - 14	2 of 3	1
Project	Unit	Doc. Code & Serial No.	Page	Rev.



SHAPE X mm	MC100		MC125		MC150		MC 200	
	P	F	P	F	P	F	P	F
1000	24	7.0	30	8.9	38	11.5	50	15
2000	14	4.0	18	4.9	22	6.5	29	8.5

TABLE 2		
DIAM		②
ND	Inch	
200 TO 450	8" TO 18"	ISA 7
500 TO 600	20" TO 24"	ISA 1



9	SHOE	1	REFER TO CR03	/	/	/	/	/	/	/	/	
8	SHOE	1	REFER TO WR03	/	/	/	/	/	/	/	/	
7	GUIDE	2	REFER TO WG02	/	/	/	/	/	/	/	/	
6	WEDGE	4	REFER TO WE04	/	/	/	/	/	/	/	/	
5	STIFFENER	16	REFER TO SP05	/	/	/	/	/	/	/	/	
4	PLATE	4	PLATE THk. 10	A36	A36	A36	A36	A36	A36	A36	A36	
3	BRACE	2	SAME AS BEAM	A36	A36	A36	A36	A36	A36	A36	A36	
2	CROSS BEAM	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	
1	BEAM	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
				MATCH								

NOTES:

1. DELETED  
2. X DIMENSION FOR TYPES A2 / B2 / C2 IS LIMITED FROM 1100 TO 2000. TO BE ADJUSTED AT ERECTION.  
3. Y DIMENSION (APPROX.)  $X \times 1.15$ , TO BE ADJUSTED AT ERECTION.  
4. Z DIMENSION IS  $(X - W/2 - 100) \times 0.67$ .  
5. ANGLE 30° MIN AS DEFAULT, TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.  
6. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

Support Mark

Positional Mark

SB14	DIAM	TYPE	SHAPE	X	W	$\beta$
------	------	------	-------	---	---	---------

ELEV	a
------	---

## Technip

**BIDIRECTIONAL VERTICAL GUIDE  
FOR DIAM 8" TO 24"**

SB14

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1394 - 14
--------	-----	-----------------

3 of 3	1
--------	---

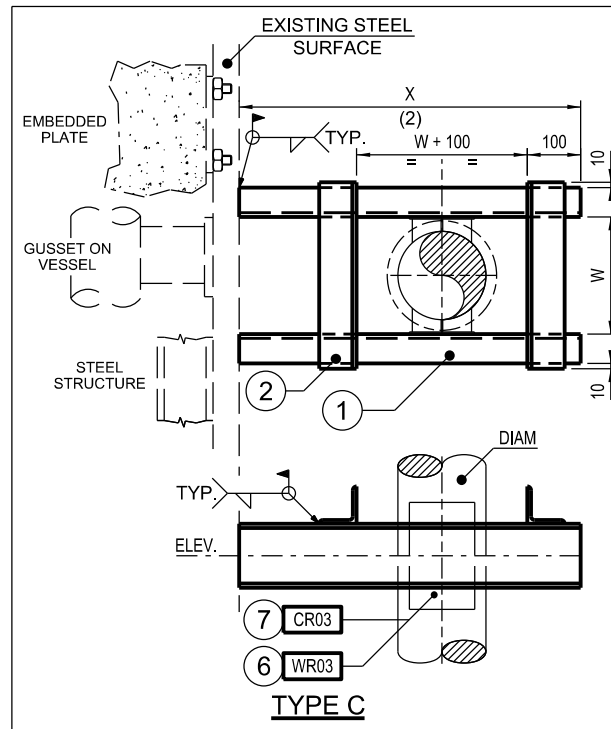
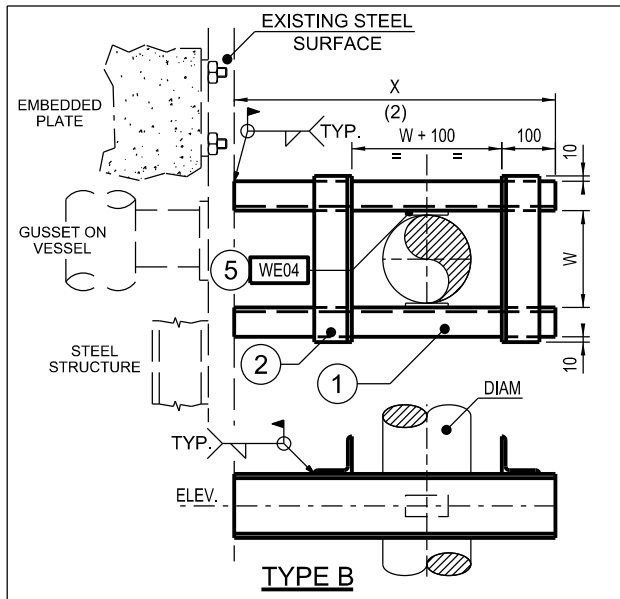
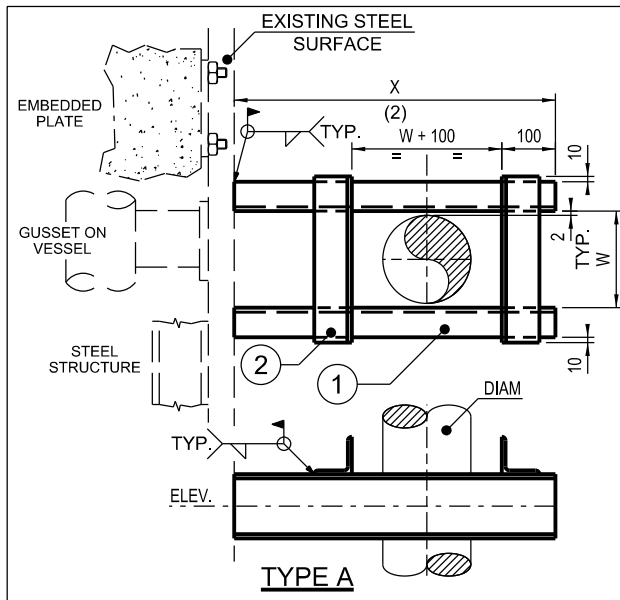


TABLE 1 - LOADS (kN) TYPE A/B/C								
SHAPE X mm	MC100		MC125		MC150		MC 200	
	P	F	P	F	P	F	P	F
500	5.2	1.8	9.8	3.4	16.4	5.7	26	9.1
1000	4.0	1.4	7.8	2.7	13.6	4.7	20	7

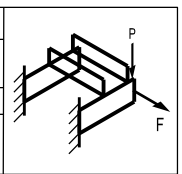
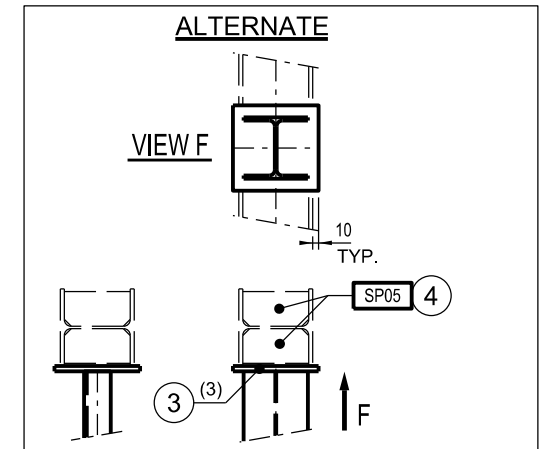
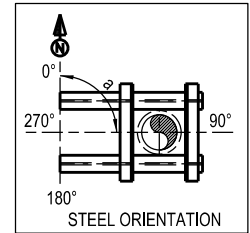


TABLE 2		
DIAM		2
ND	Inch	
50 TO 150	2" TO 6"	ISA 50
200 TO 450	8" TO 18"	ISA 75
500 TO 600	20" TO 24"	ISA 100



NOTES:

1. DELETED
2. X DIMENSION FOR TYPES A / B / C IS LIMITED FROM 400 TO 1100. TO BE ADJUSTED AT ERECTION.
3. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

7	SHOE	1	REFER TO CR03	/	/	/	/	/	/	/	/	/	/
6	SHOE	1	REFER TO WR03	/	/	/	/	/	/	/	/	/	/
5	WEDGE	1	REFER TO WE04	/	/	/	/	/	/	/	/	/	/
4	STIFFENER	8	REFER TO SP05	/	/	/	/	/	/	/	/	/	/
3	PLATE	2	PLATE Thk, 10	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36
2	CROSS BEAM	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	BEAM	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL	

MATCL

Support Mark

SB15 DIAM TYPE SHAPE X W β

Positional Mark

ELEV a

Technip

UNIDIRECTIONAL VERTICAL GUIDE  
FOR DIAM 2" TO 24"

SB15

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX

000

STC - 1394 - 15

1 of 3

1

Project

Unit

Doc. Code & Serial No.

Page

Rev.

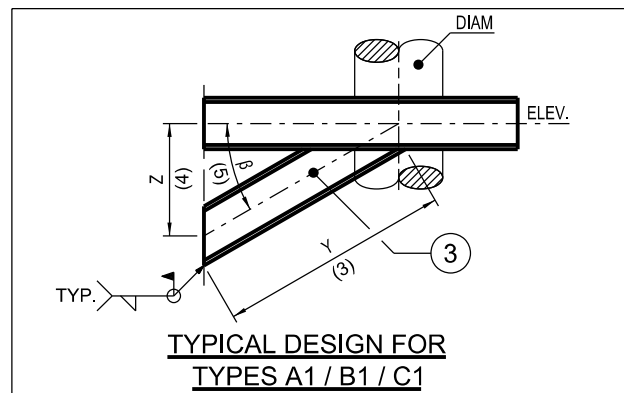
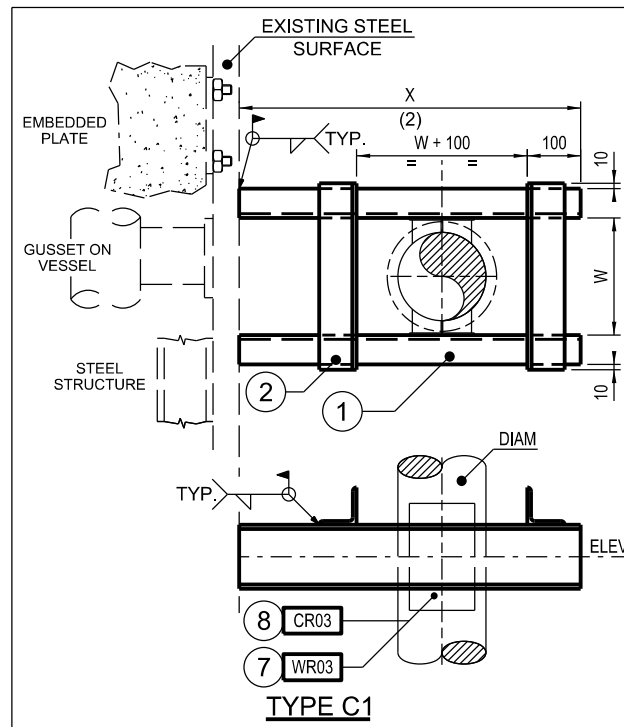
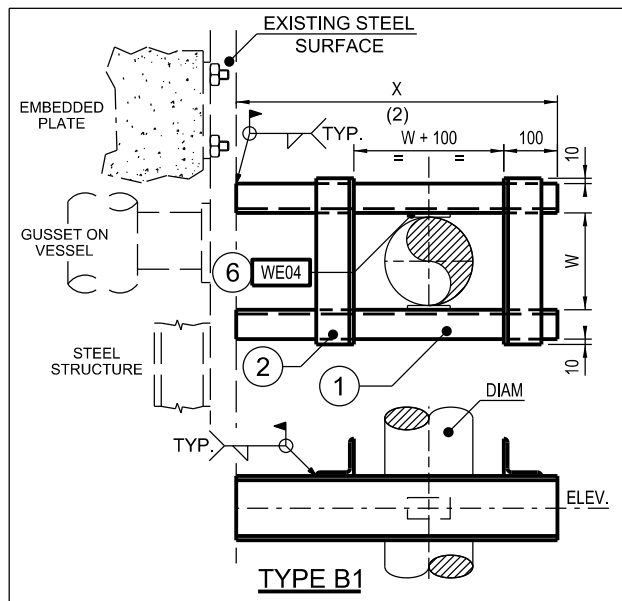
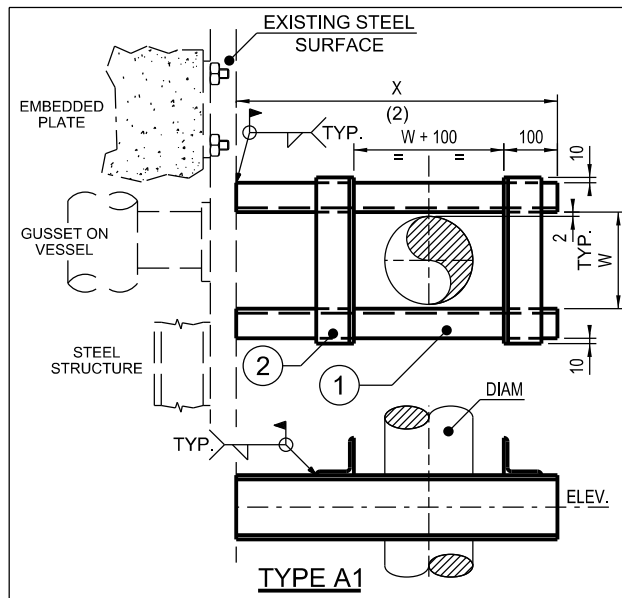


TABLE 1 - LOADS (kN ) TYPE A1/B1/C1								
SHAPE X mm	MC100		MC125		MC150		MC 200	
	P	F	P	F	P	F	P	F
1000	24	7.0	30	8.9	38	11.5	50	15
2000	14	4.0	18	4.9	22	6.5	29	8.5

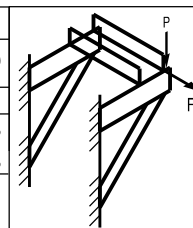
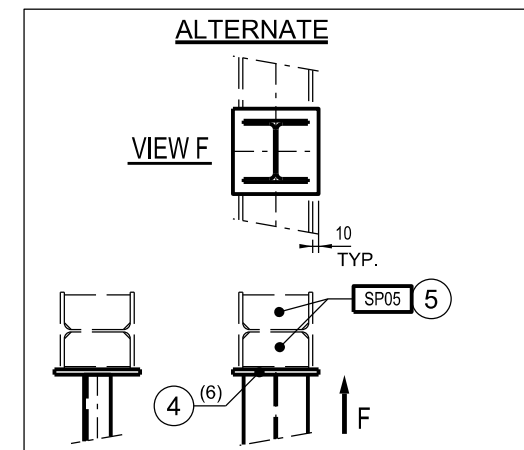
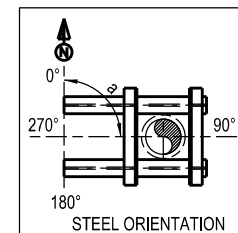


TABLE 2		
DIAM		2
ND	Inch	
50 TO 150	2" TO 6"	ISA 50
200 TO 450	8" TO 18"	ISA 75
500 TO 600	20" TO 24"	ISA 100



NOTES:

1. DELETED
2. X DIMENSION FOR TYPES A1 / B1 / C1 IS LIMITED FROM 1100 TO 2000. TO BE ADJUSTED AT ERECTION.
3. Y DIMENSION (APPROX.)  $X \times 1.15$ . TO BE ADJUSTED AT ERECTION.
4. Z DIMENSION IS  $(X - W/2 - 100) \times 0.57$ .
5. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.
6. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

Support Mark

**SB15** DIAM TYPE SHAPE X W  $\beta$

Positional Mark

**ELEV** a

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
8	SHOE	1	REFER TO CR03	/	/	/	/	/	/	/	/	/
7	SHOE	1	REFER TO WR03	/	/	/	/	/	/	/	/	/
6	WEDGE	2	REFER TO WE04	/	/	/	/	/	/	/	/	/
5	STIFFENER	16	REFER TO SP05	/	/	/	/	/	/	/	/	/
4	PLATE	4	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
3	BRACE	2	SAME AS BEAM	A36	A36	A36	A36	A36	A36	A36	A36	A36
2	CROSS BEAM	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	BEAM	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

UNIDIRECTIONAL VERTICAL GUIDE  
FOR DIAM 2" TO 24"

**SB15**

Project	Unit	Doc. Code & Serial No.	Page	Rev.
XXXXXX	000	STC - 1394 - 15	2 of 3	1

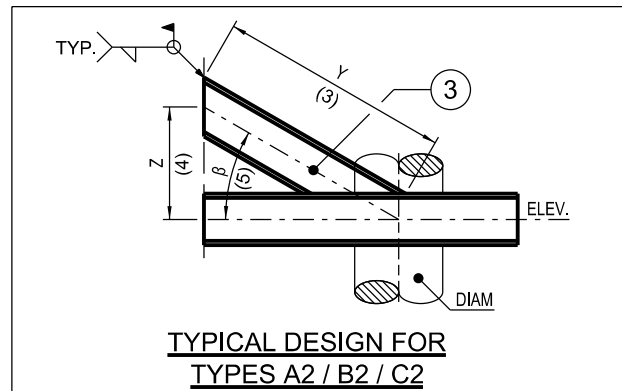
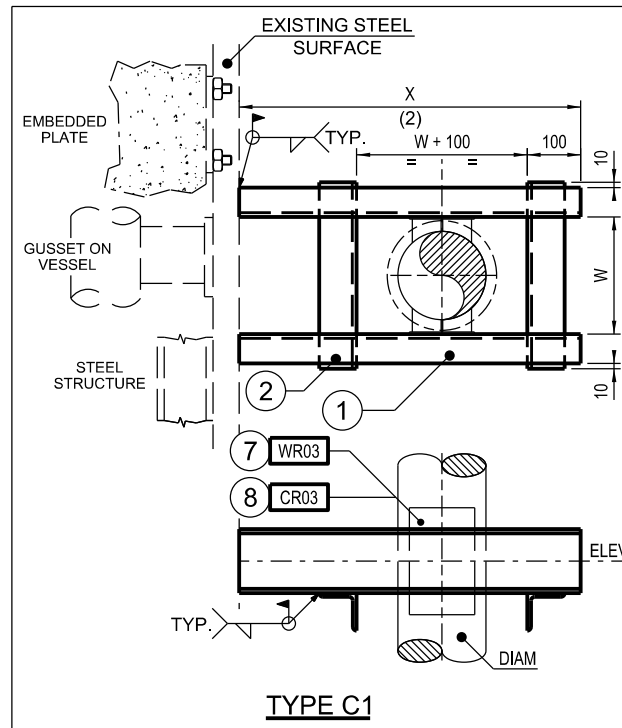
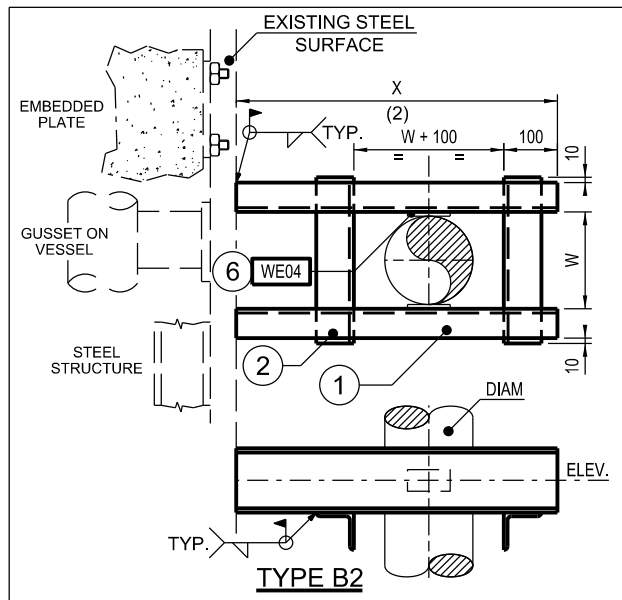
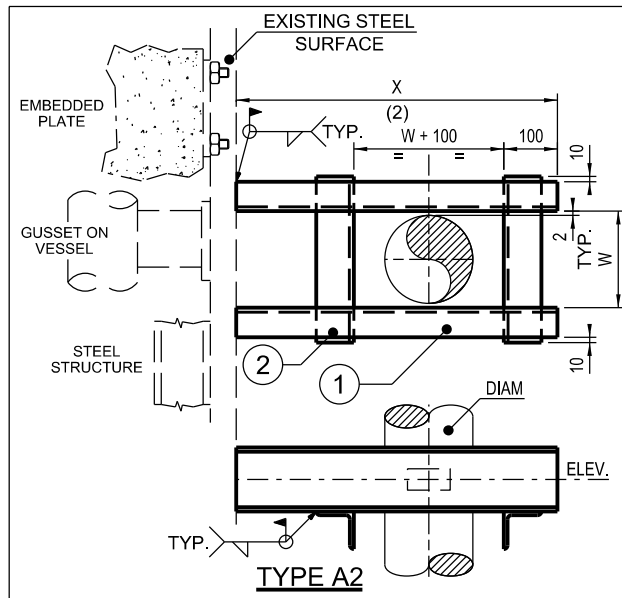


TABLE 1 - LOADS (kN) TYPE A2/B2/C2								
SHAPE X mm	MC100		MC125		MC150		MC 200	
	P	F	P	F	P	F	P	F
1000	24	7.0	30	8.9	38	11.5	50	15
2000	14	4.0	18	4.9	22	6.5	29	8.5

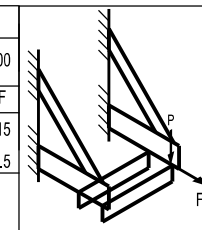
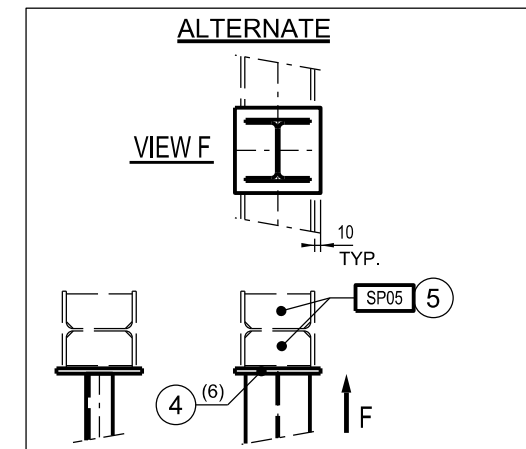
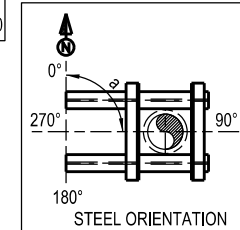


TABLE 2			
DIAM		(2)	
ND	Inch		
50 TO 150	2" TO 6"	ISA 50	
200 TO 450	8" TO 18"	ISA 75	
500 TO 600	20" TO 24"	ISA 100	



NOTES:

1. DELETED
2. X DIMENSION FOR TYPES A2 / B2 / C2 IS LIMITED FROM 1100 TO 2000. TO BE ADJUSTED AT ERECTION.
3. Y DIMENSION (APPROX.) X x 1.15. TO BE ADJUSTED AT ERECTION.
4. Z DIMENSION IS (X - W/2 - 100) x 0.57.
5. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.
6. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

Support Mark

SB15 DIAM TYPE SHAPE X W β

Positional Mark

ELEV a

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
8	SHOE	1	REFER TO CR03	/	/	/	/	/	/	/	/	/
7	SHOE	1	REFER TO WR03	/	/	/	/	/	/	/	/	/
6	WEDGE	2	REFER TO WE04	/	/	/	/	/	/	/	/	/
5	STIFFENER	16	REFER TO SP05	/	/	/	/	/	/	/	/	/
4	PLATE	4	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
3	BRACE	2	SAME AS BEAM	A36	A36	A36	A36	A36	A36	A36	A36	A36
2	CROSS BEAM	2	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	BEAM	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

UNIDIRECTIONAL VERTICAL GUIDE  
FOR DIAM 2" TO 24"

SB15

Project	Unit	Doc. Code & Serial No.	Page	Rev.
XXXXXX	000	STC - 1394 - 15	3 of 3	1

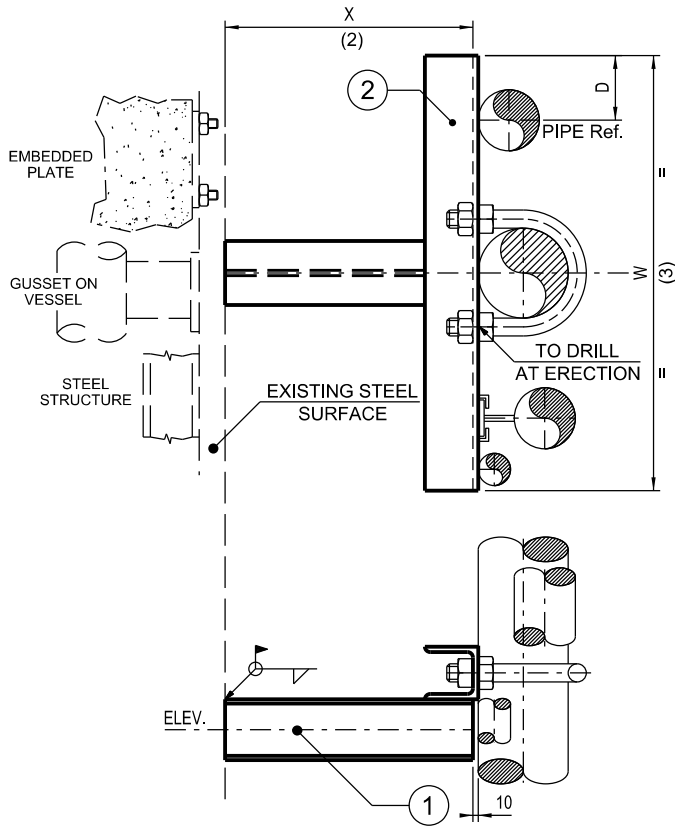
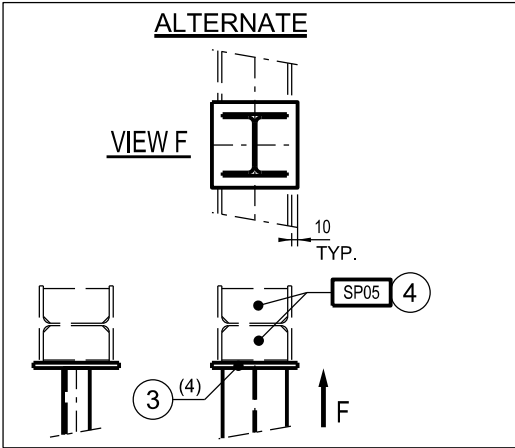
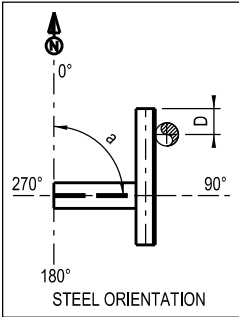
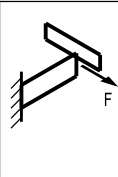


TABLE 1 - F (kN) (1)		
SHAPE	UC152*23	UC152*30
X mm		
200	17.7	36.1
500	7.1	14.4
1000	3.5	7.2



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa.  
RESULTANT LOAD IS ASSUMED AT THE MIDDLE OF BEAM.  
2. X DIMENSION IS LIMITED TO 1000.  
3. W DIMENSION IS LIMITED FROM 200 TO 1200.  
4. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

④	STIFFENER	4	REFER TO SP05	/	/	/	/	/	/	/	/	/	
③	PLATE	1	PLATE Thk, 10	A36	A36	A36	A36	A36	A36	A36	A36	A36	
②	CROSS BEAM	1	SHAPE MC100	A36	A36	A36	A36	A36	A36	A36	A36	A36	
①	BRACKET	1	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL	

MATCL

Support Mark

SB16 SHAPE D X W

Positional Mark

ELEV a

Technip

COMMON BRACKET GUIDE  
FOR LINES UP TO DIAM 4"

SB16

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX 000

STC - 1394 - 16

1 of 1 1

Project Unit Doc. Code & Serial No. Page Rev.

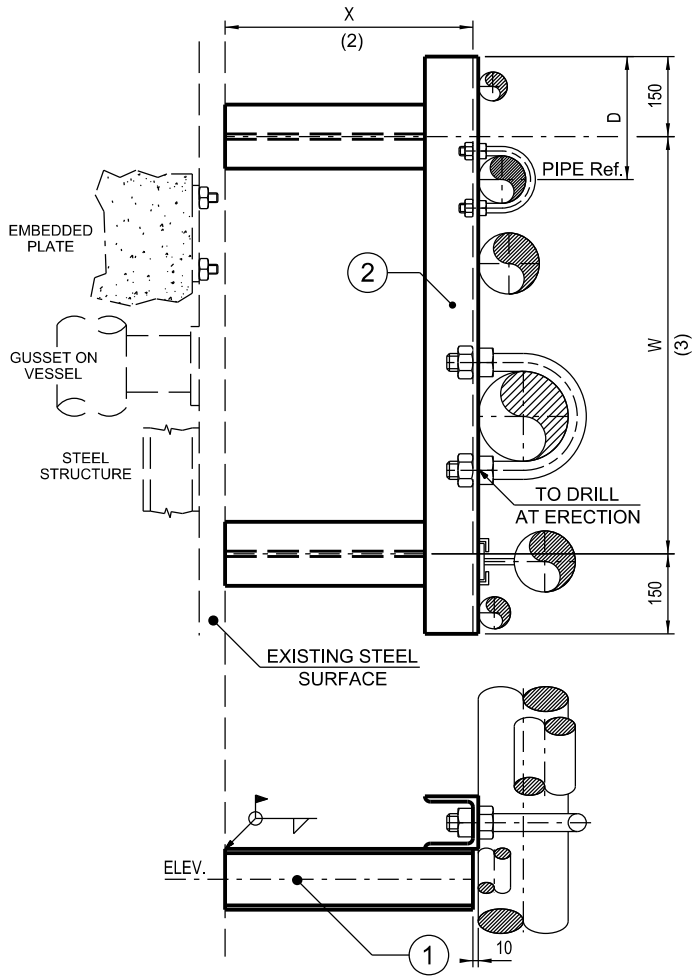
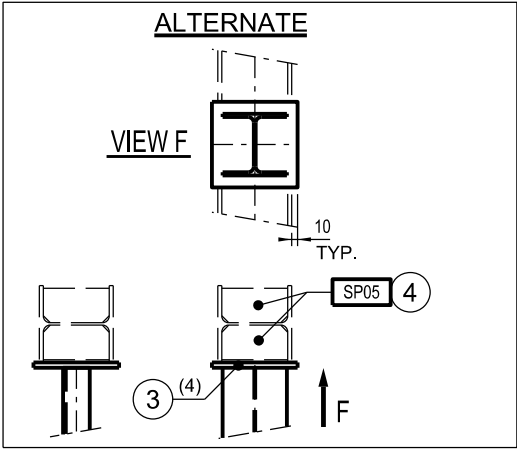
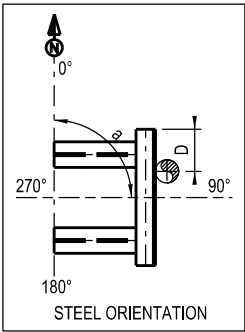


TABLE 2	
W	(2)
200 TO 300	MC100
UP TO 700	MC125
UP TO 1200	MC150

TABLE 1 - F (kN) (1)			
X mm	SHAPE	UC152*23	UC152*30
		7.1	14.4
500			
1000		3.5	7.2



NOTES:  
1. MAXI HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
Sadm = 235 MPa x 0.8 = 188 MPa.  
RESULTANT LOAD IS ASSUMED AT THE MIDDLE OF BEAM.  
2. X DIMENSION IS LIMITED TO 1000.  
3. W DIMENSION IS LIMITED FROM 200 TO 1200.  
4. PLATE DIMENSIONS TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.

Support Mark

SB17 SHAPE D X W

Positional Mark

ELEV a

(4)	STIFFENER	8	REFER TO SP05	/	/	/	/	/	/	/	/	/	
(3)	PLATE	2	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36	
(2)	CROSS BEAM	1	SEE TABLE 2	A36	A36	A36	A36	A36	A36	A36	A36	A36	
(1)	BRACKET	2	SEE TABLE 1	A36	A36	A36	A36	A36	A36	A36	A36	A36	
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL	

MATCL

STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		XXXXXX	000	STC - 1394 - 17	1 of 1	1
Technip		COMMON DOUBLE BRACKET GUIDE FOR LINES UP TO DIAM 4"		SB17		
Project		Unit		Doc. Code & Serial No.		Page



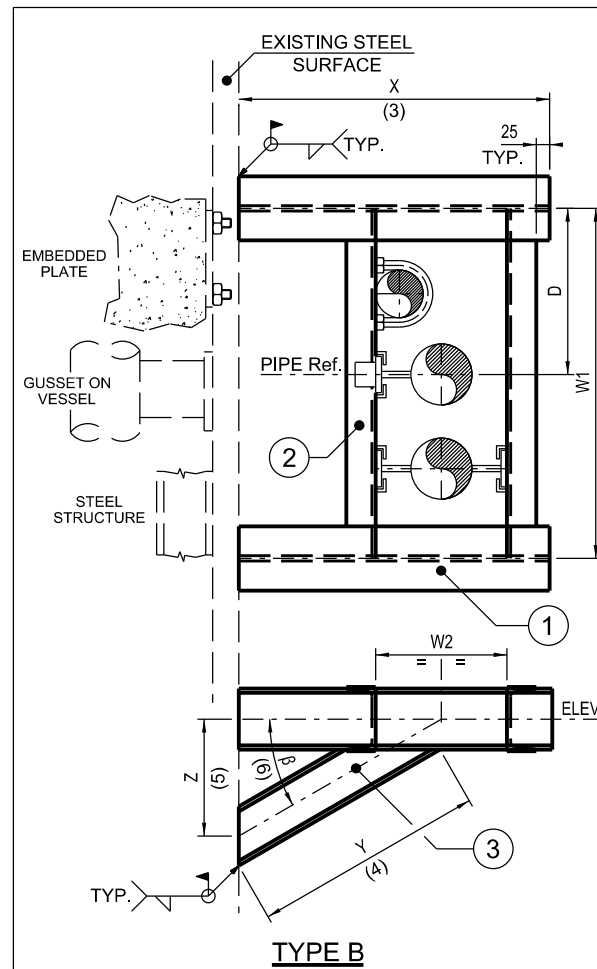
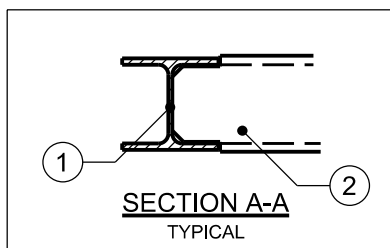
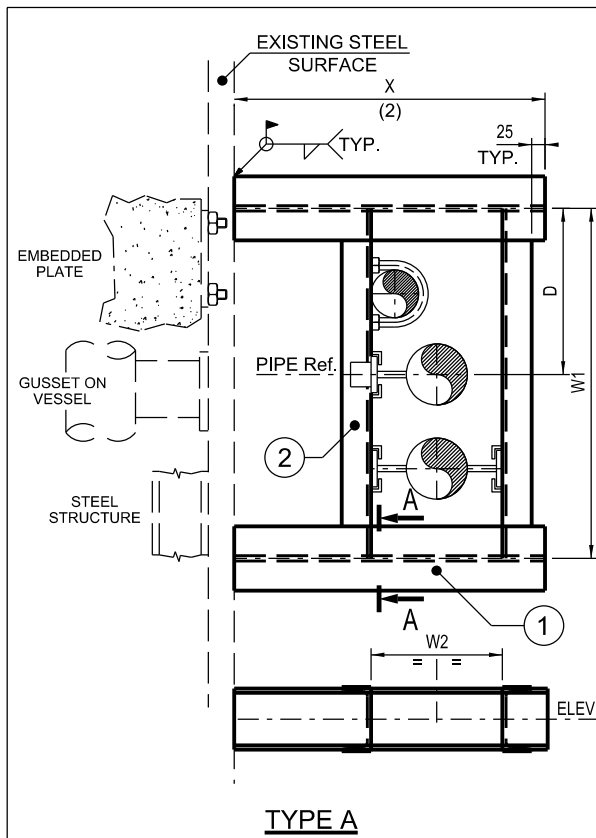
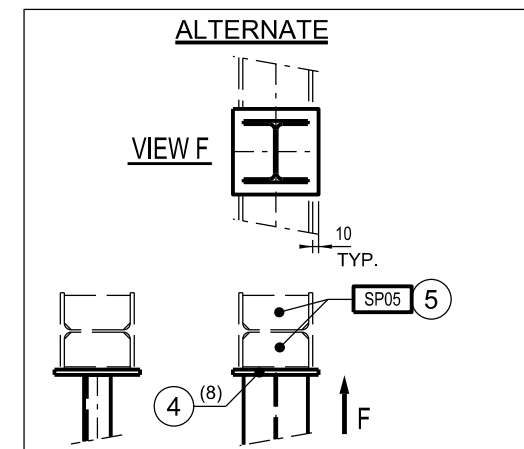
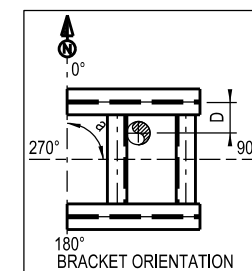


TABLE 1 - P (kN) (1)						
SHAPE X mm	MC100	MC125	MC150	UC152*23	UC152*30	
200	5.8	12.1	21.0	50.8	-	
500	2.6	5.1	8.6	20.3	41.3	
1000	1.5	2.8	4.6	10.0	20.6	

TABLE 2 - P (kN) (1)						
SHAPE X mm	MC100	MC125	MC150	UC152*23	UC152*30	
1000	6.3	10.8	17.4	33.4	61.8	
1500	4.0	7.0	11.4	22.8	43.4	
2000	3.0	5.2	8.4	17.0	33.0	

TABLE 3		
1	3	2
MC100	MC100	
MC125	MC125	
MC150	MC150	
UC152*23	MC150	
UC152*30	MC150	

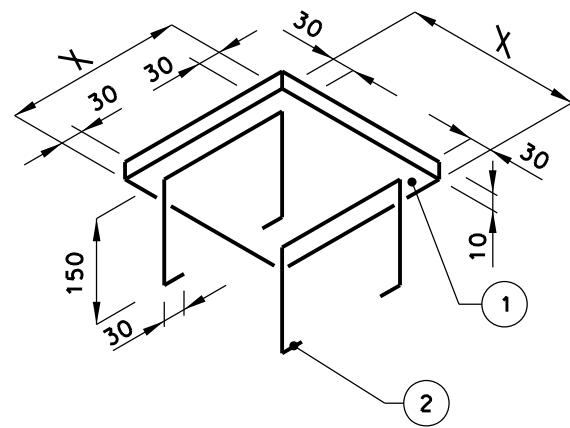
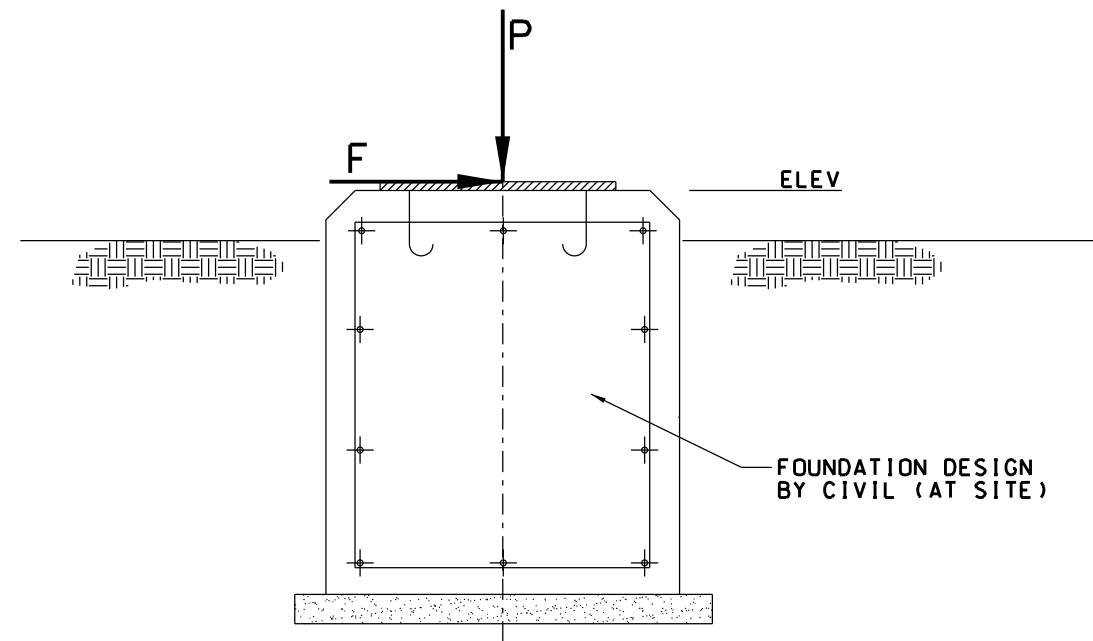


NOTES:  
1. MAXIMUM HORIZONTAL LOAD :  $F = 0.35 \times P$ .  
2.  $S_{adm} = 235 \text{ MPa} \times 0.8 = 188 \text{ MPa}$ .  
3. X DIMENSION FOR TYPE A IS LIMITED FROM 200 TO 1000.  
4. X DIMENSION FOR TYPE B IS LIMITED FROM 1000 TO 2000.  
5. Y DIMENSION (APPROX.)  $X \times 1.15$ . TO BE ADJUSTED AT ERECTION.  
6. Z DIMENSION IS  $(X - 200) \times 0.57$ .  
7. ANGLE 30° MIN AS DEFAULT. TO BE CHANGED IF NECESSARY FOR VESSEL APPLICATIONS.  
8. FOR CHANNEL SHAPE, W IS INTERNAL DIMENSION.  
9. W1 DIMENSION TO BE ADJUSTED AT ERECTION AS PER EXISTING STEEL SIZE.  
10. W1 DIMENSION TO BE LIMITED. MAX = 2000.

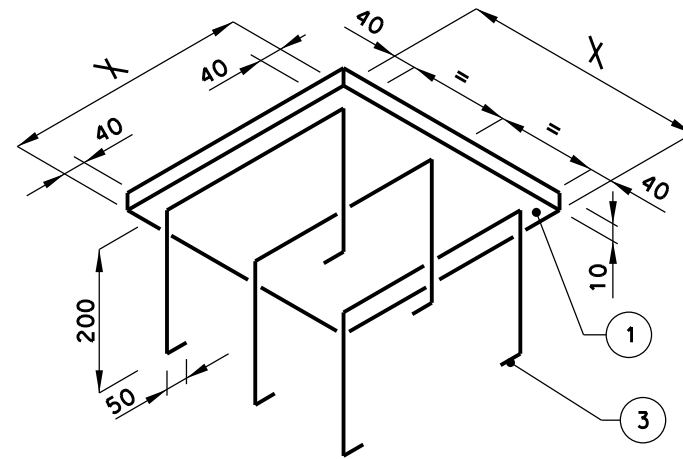
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SS	SH	SL
5	STIFFENER	8/16	REFER TO SP05	/	/	/	/	/	/	/	/	/
4	PLATE	2/4	PLATE Thk. 10	A36	A36	A36	A36	A36	A36	A36	A36	A36
3	BRACE	2	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36
2	CROSS BEAM	2	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36
1	BEAM	2	SEE TABLES	A36	A36	A36	A36	A36	A36	A36	A36	A36

MATCL

Support Mark										Positional Mark			
SB18	DIAM	TYPE	SHAPE	D	X	W1	W2	β		ELEV	a		
<b>Technip</b>				DOUBLE BRACKET FOR MULTIPLE VERTICAL PIPE DIAM 2" TO 24"						SB18			
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING				XXXXXX	000	STC - 1394 - 18				1 of 1	1		
Project				Unit				Doc. Code & Serial No.				Page	Rev.



FOR X= 200-300



FOR X= 400-500

TABLE "1"			
X	P [KN]	F [KN]	HOOK DEVELOP EACH
200	10.00	5.00	500
300	10.00	5.00	600
400	12.00	10.00	820
500	20.00	12.00	920

NOTES:  
1. DIMENSION X IS LIMITED FROM 200 TO 500. WITH STEP 100.

Support Mark	Positional Mark
SP01	X ELEV

○				
③	HOOK	3	ROD Ø12	A36
②	HOOK	2	ROD Ø10	A36
①	PLATE	1	PLATE THK.10	A36
ITEM	DESCRIPTION	QTY.	DETAIL	MATERIAL

<b>Technip</b> TECHNIP INDIA LTD.	BASE PLATE FOR UNPAVED AREA		SP01	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING	TPIL DRAWING NO.	XXXXXXXXXX-000-STC-1394-21	SHEET NO. 1 of 1	REV. A

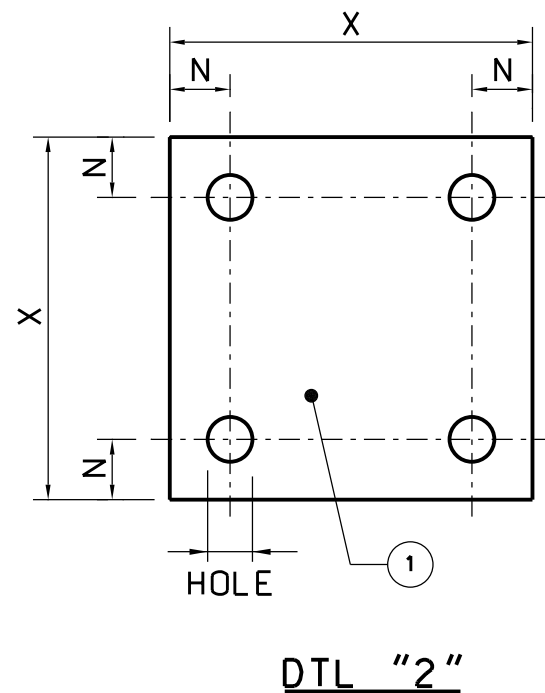
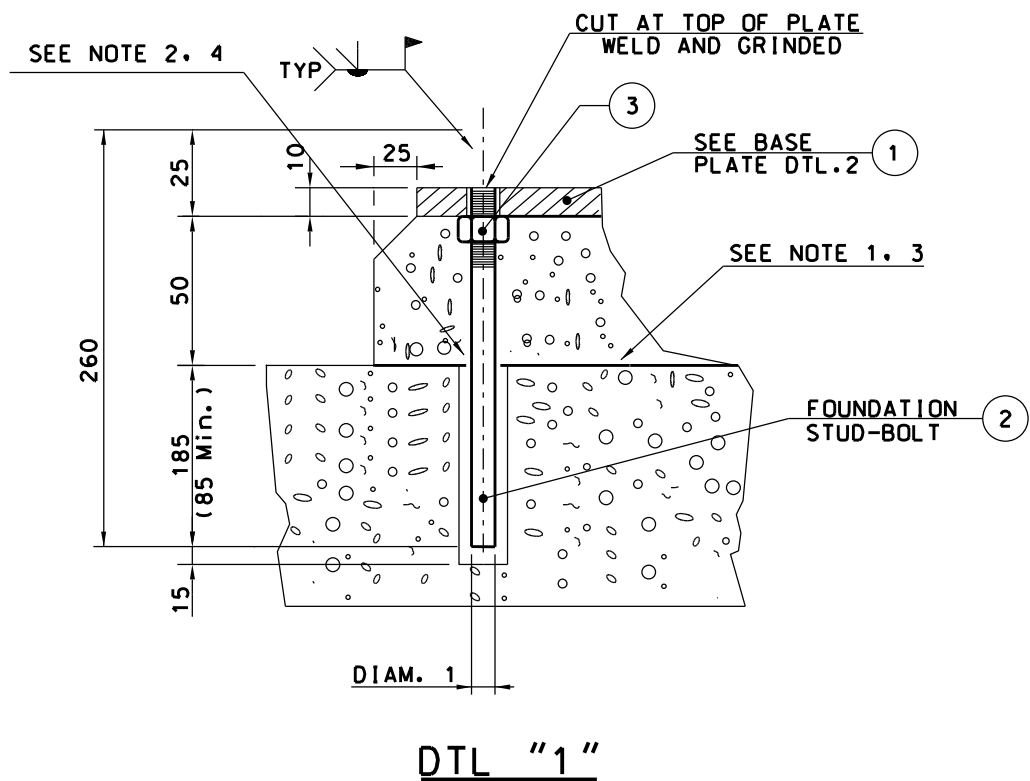
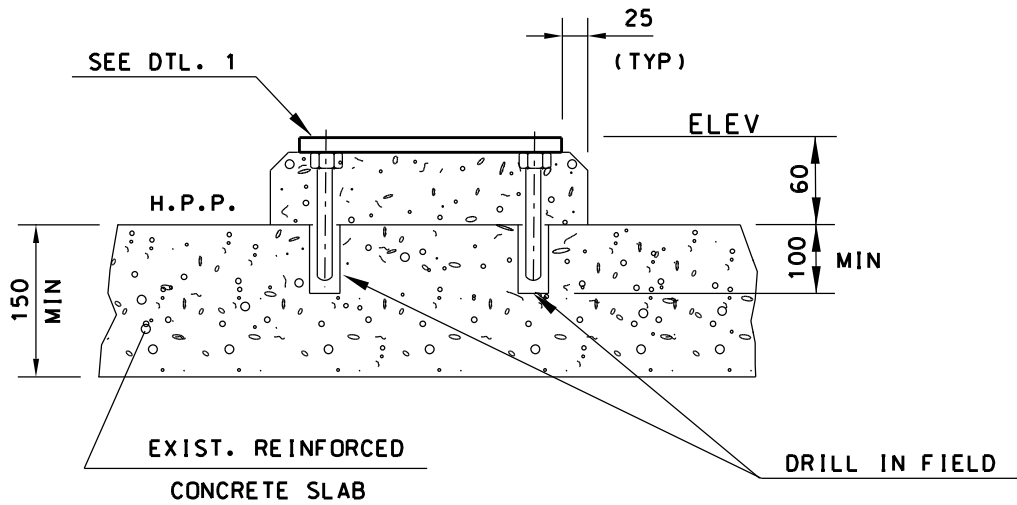


TABLE "1"					
X	P [KN]	F [KN]	DIAM1	HOLE	N
200	10.00	16.00	10	12	18
300	12.00	16.00	12	14	21
400	15.00	16.00	16	18	27
500	20.00	16.00	20	22	33

- NOTES:
1. VERTICAL (P) AND HORIZONTAL (F) ALLOWABLE LOADS DEFINED CONSIDERING THE SLAB AND GROUND FEATURES.
  2. DIMENSION X IS LIMITED FROM 200 TO 500, WITH STEP 100.
  3. LIGHT CHIPPING SURFACE.
  4. PROVIDE MORTER SHRINKING HOLE PREVENT.

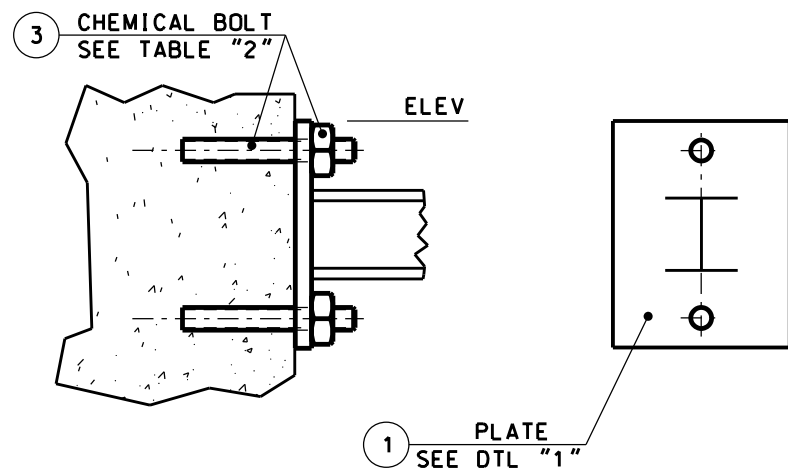
Support Mark      Positional Mark

SP02    X    ELEV

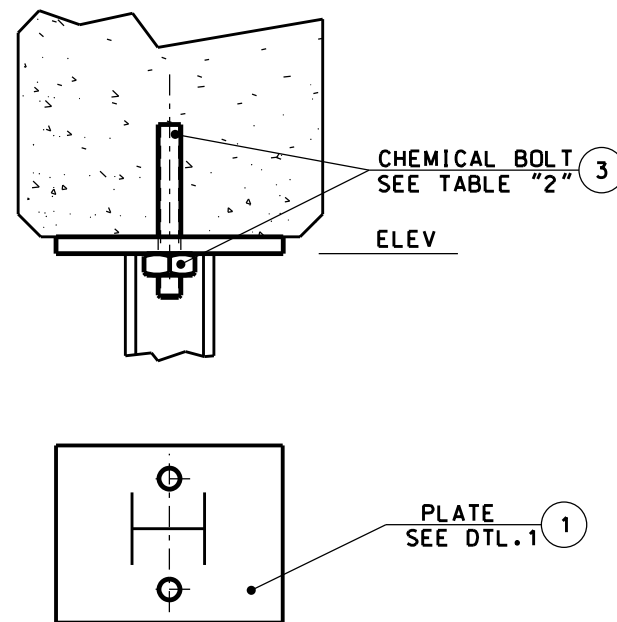
ITEM	DESCRIPTION	QTY.	DETAIL	MATERIAL
③	NUT	4	DIAM1	A194-2H
②	STUD-BOLT	4	DIAM1	A193-B7
①	BASE PLATE	1	PLATE THK.10	A36

<b>Technip</b> TECHNIP INDIA LTD.		BASE PLATE FOR PAVED AREA		SP02	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		TPIL DRAWING NO.	XXXXXXXXXX-000-STC-1394-22	SHEET NO. 1 of 1	REV. A

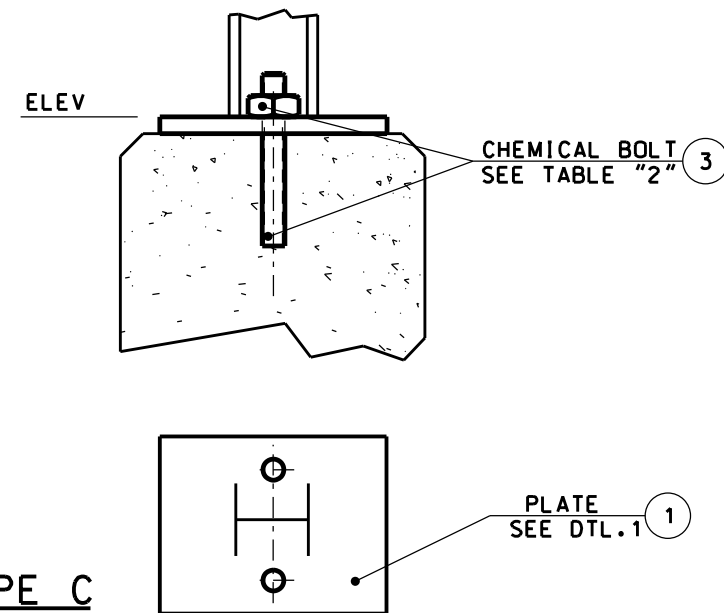
0000STC139410P1RO.DGN



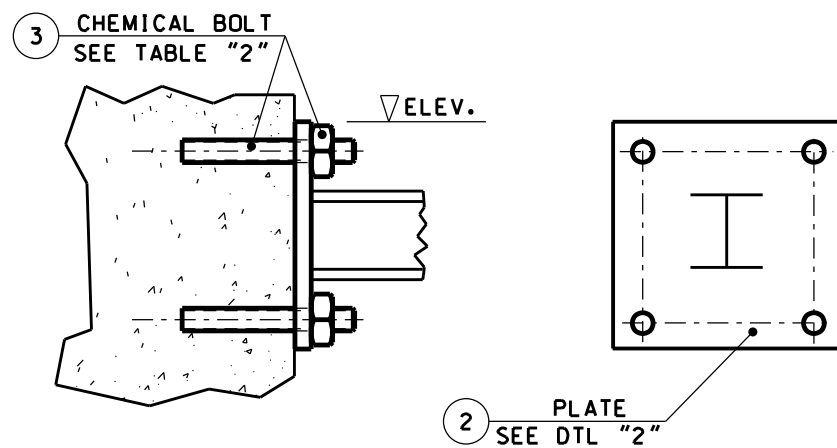
TYPE A



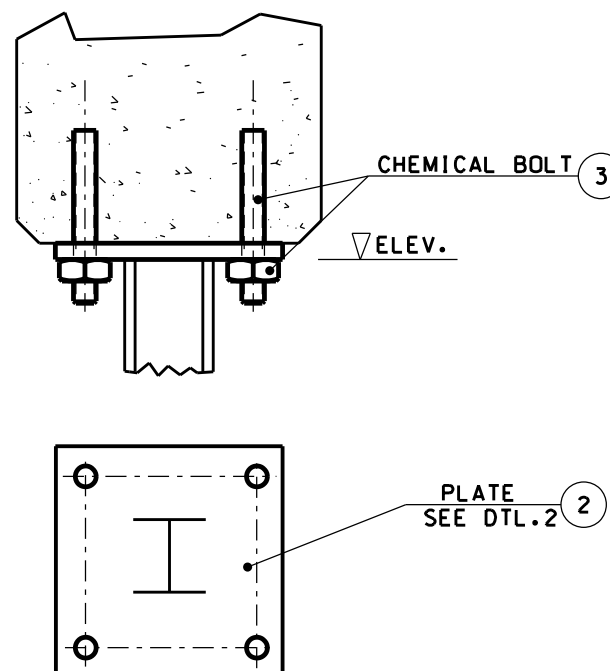
TYPE B



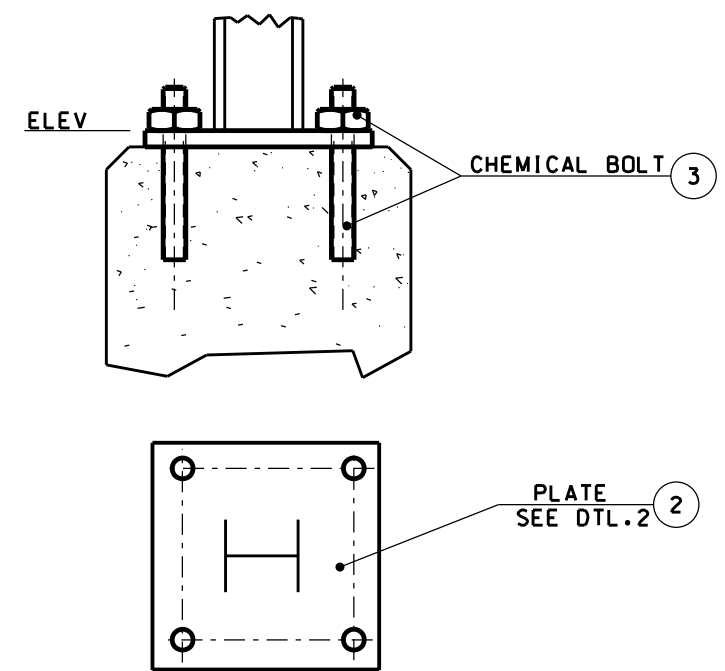
TYPE C



TYPE A1



TYPE B1



TYPE C1

NOTES:

1. CHEMICAL BOLTS LOADS AND DIMENSION AS PER HILTI CATALOGUET ED-2001.

Support Mark

Positional Mark

SP03 TYPE PLATE SIZE BOLT SIZE BOLT MATCL

ELEV

ITEM	DESCRIPTION	QTY.	DETAIL	MATERIAL
3	BOLT	2	CHEM. BOLT	(1)
2	PLATE	1	SEE TABLE "1"	A36
1	PLATE	1	SEE TABLE "1"	A36

<b>Technip</b> TECHNIP INDIA LTD.		BOLTING PLATE ON CONCRETE		SP03	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		TPIL DRAWING NO.	XXXXXXXXXX-000-STC-1394-23	SHEET NO.	1 of 2
				REV.	A

0000STC139410P2R0.DGN

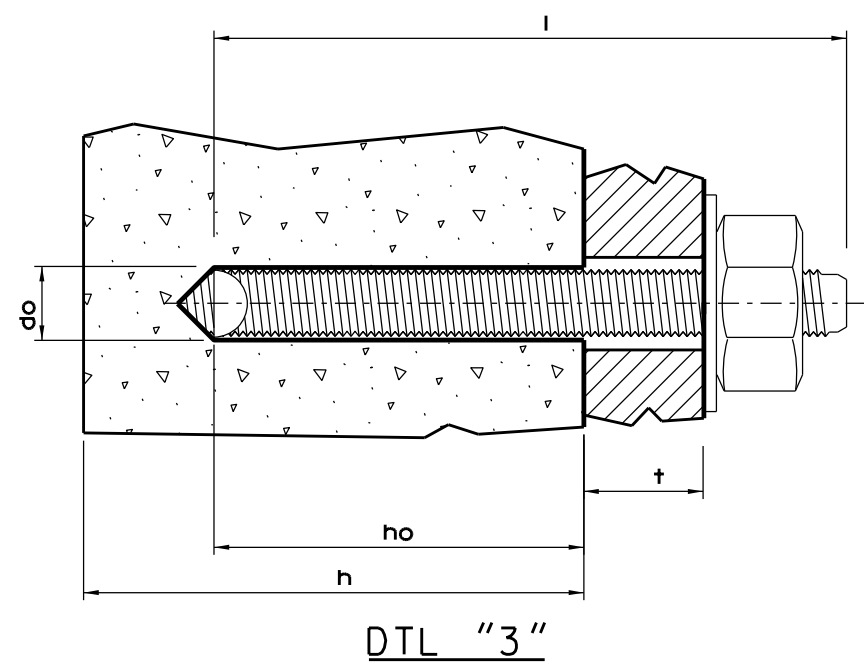
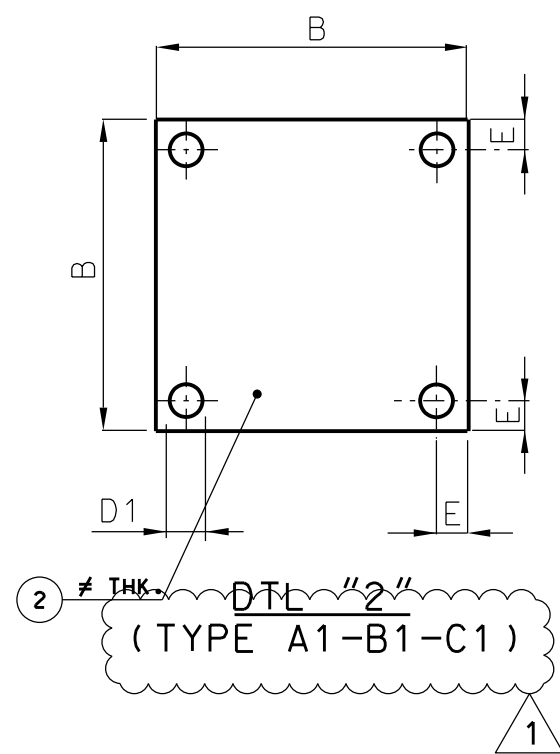
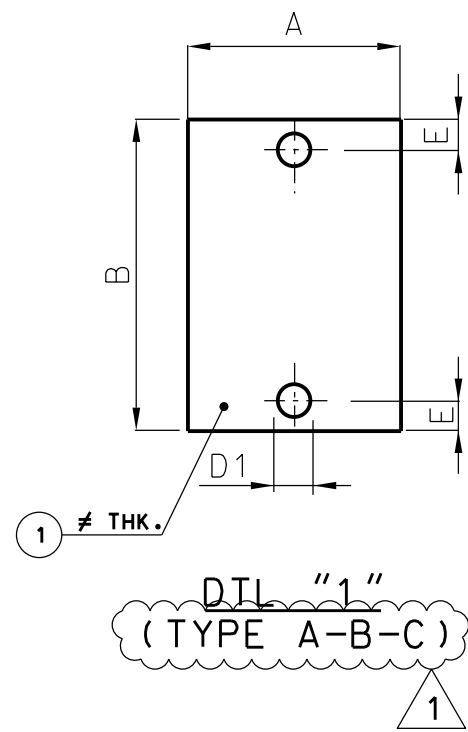
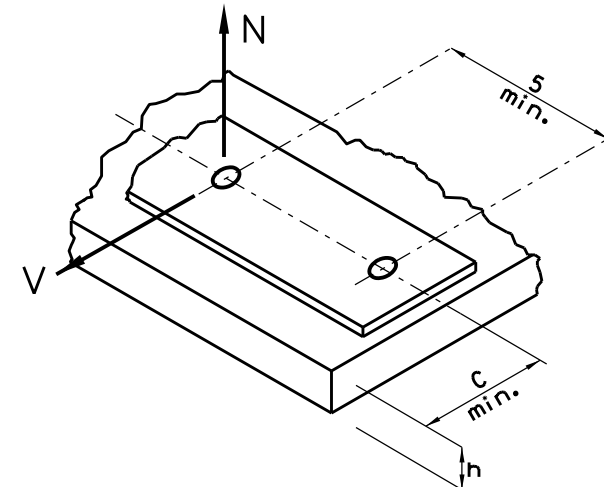


TABLE "1"			
PLATE SIZE	THK	A	B
1	10	150	300
2		200	300
3			350
4	15	250	400
5			450
6	20	300	500
7			550

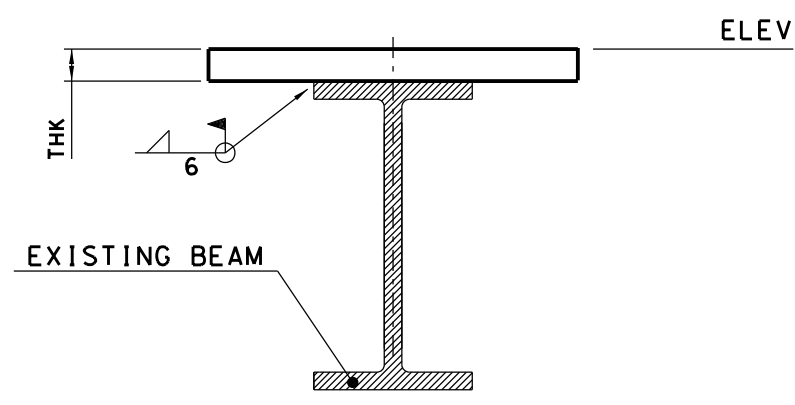
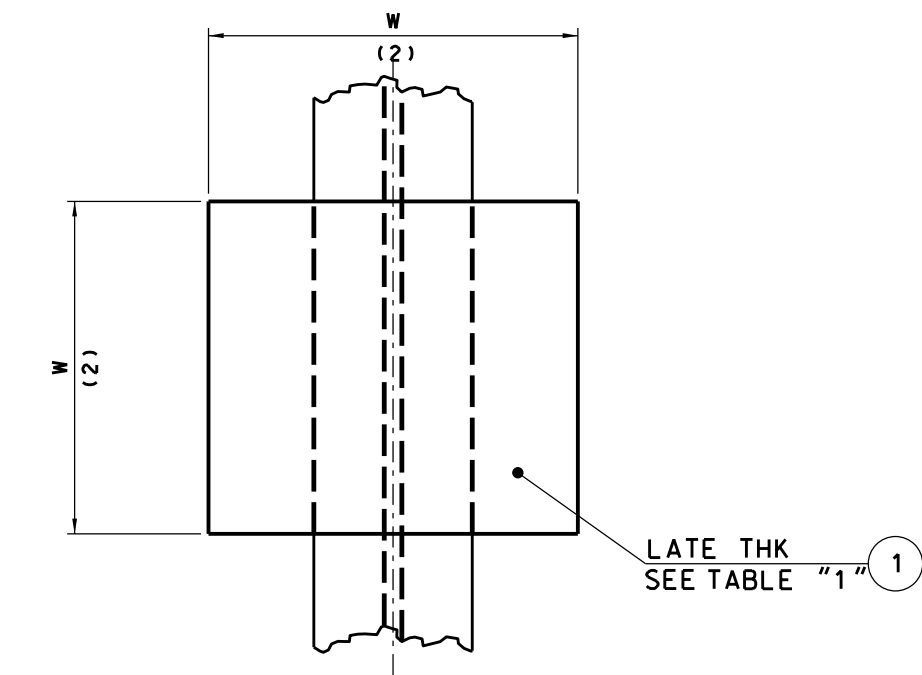
TABLE "3"	
BOLT MATCL	MATERIAL DETAIL
CG	STEEL COLD GALVANIZING 5-10 $\mu$
CGH	STEEL HOT GALVANIZING 45 $\mu$
SS	INOX (316)

TABLE "2"												
BOLT SIZE	BOLT	h	ALLOW. LOADS (KN)		do	D1	E	C	SG	t	l	s
			N	V								
1	M 8	80	7.40	5.60	10	11	25	-	130	14	110	50
2	M 10	90	9.90	9.20	12	13	30	140	140	21	130	55
3	M 12	110	14.10	13.10	14	15	35	170	170	28	160	75
4	M 16	125	20.60	24.70	18	19	40	190	190	38	190	90
5	M 20	170	37.40	38.60	24	26	50	260	260	48	240	105
6	M 24	210	53.90	55.60	28	29	60	320	320	54	290	120
FOR COMBINATED LOADS CONSIDER 65% OF ALLOWABLE												

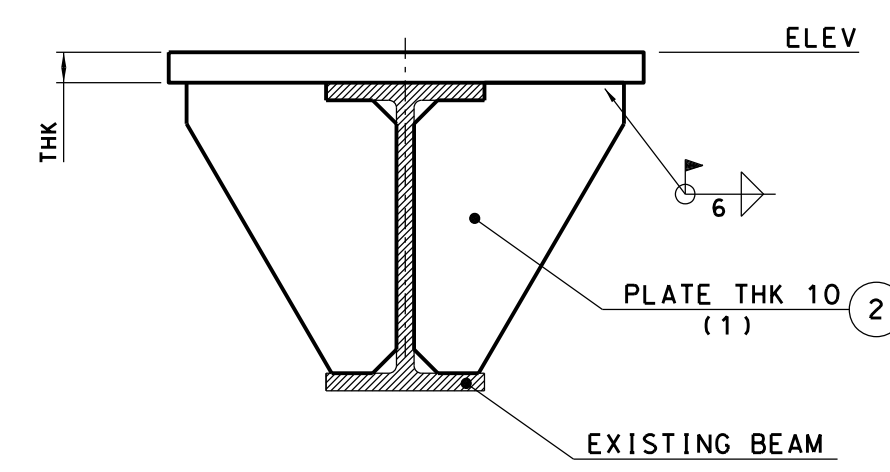
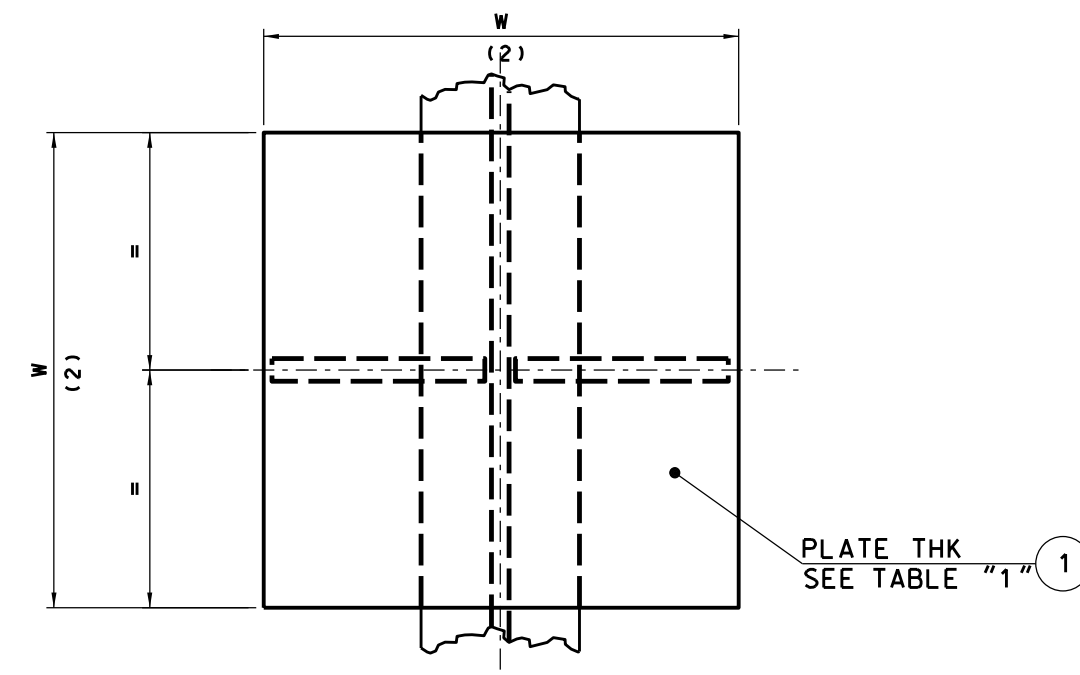
NOTE:  
DIMENSION AND LOAD ACCORDING TO CHEMICALS BOLTS HILTI TYPE HVU (HVA WITH THREDED BAR HAS)  
VALUE FOR ALL THE DIRECTION OF THE LOADS: CONCRETE  $BW \geq 25 \text{ N/mm}^2$ ,  
STATIC LOAD, NO INFLUENCE OF THE EDGE AND THE SPACING.  
(HILTI BOLT DESIGNATION FOR ORDER HVU M8x80).



<b>Technip</b> TECHNIP INDIA LTD.	BOLTING PLATE ON CONCRETE		SP03
	STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING	TPIL DRAWING NO. XXXXXXXXXXX-000-STC-1394-23	
		SHEET NO. 2 of 2	REV. A



WIDTH 150 TO 200



WIDTH 250 TO 400

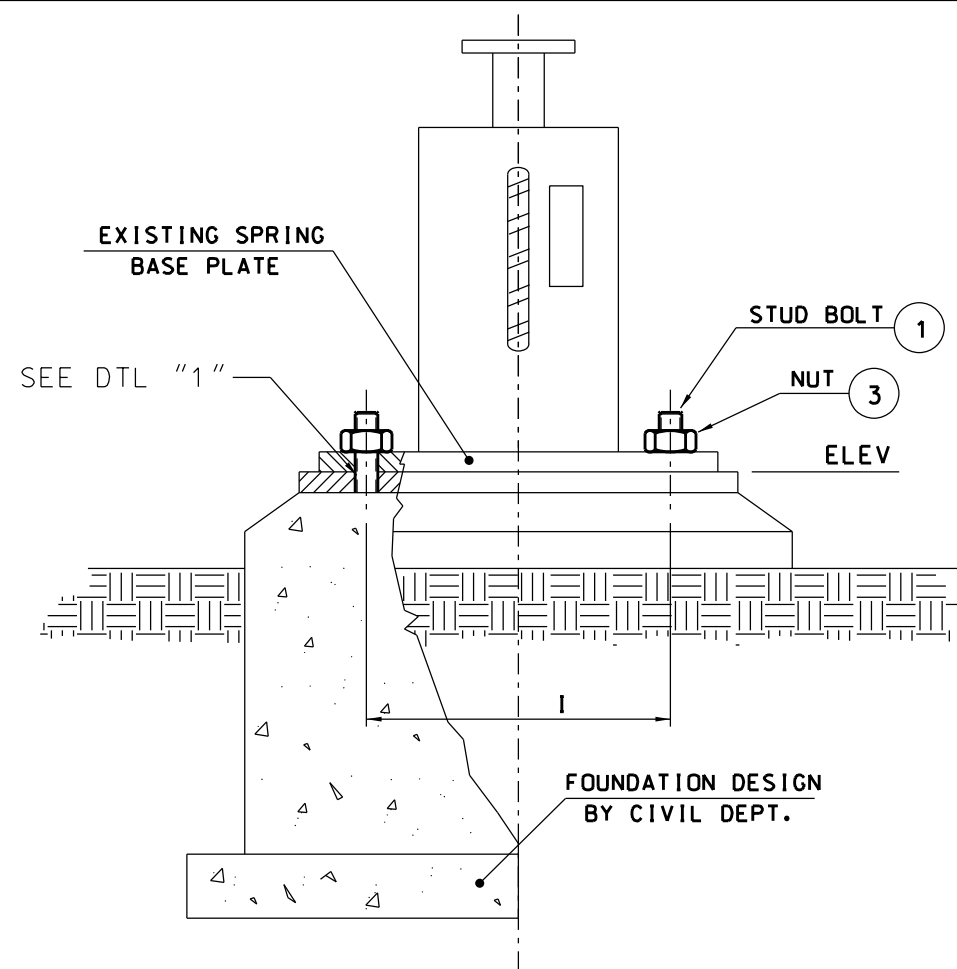
TABLE "1"	
W	THK
150	10
200	10
250	15
300	15
350	15
400	15

ITEM	DESCRIPTION	QTY.	DETAIL	MATERIAL
②	STIFFENING	2	PLT THK.10	A36
①	BASE PLATE	1	PLT THK.	A36

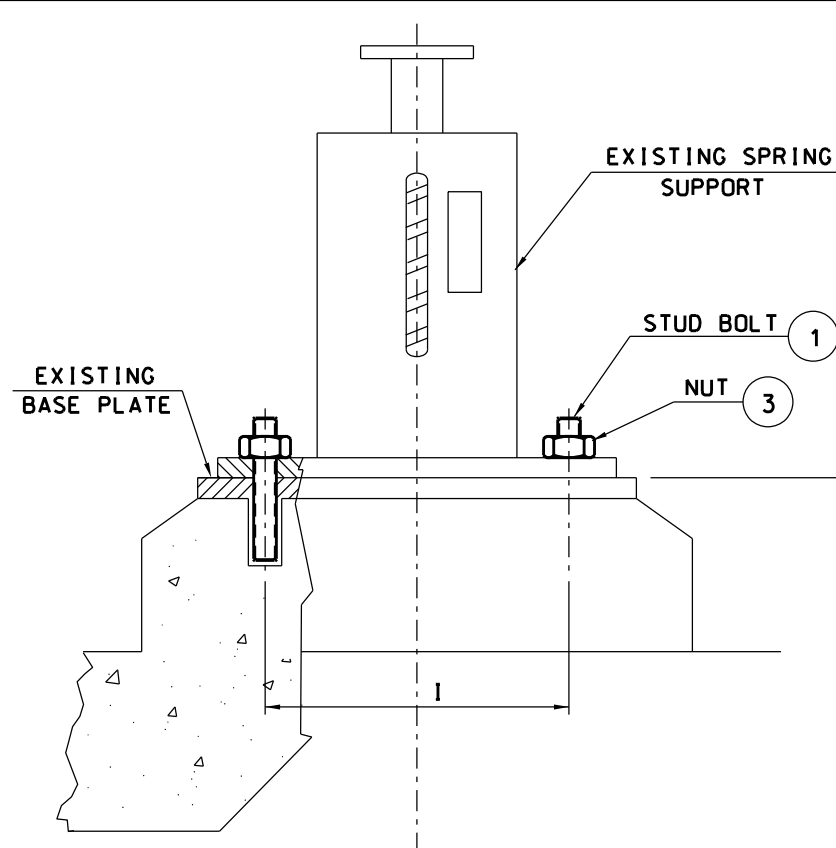
NOTES:  
1. STIFFENING PLATE TO BE CUT AND FORM AT ERECTION  
2. DIMENSION W IS LIMITED FROM 150 TO 400. WITH STEP 50.

Support Mark	Positional Mark
SP04 W	ELEV

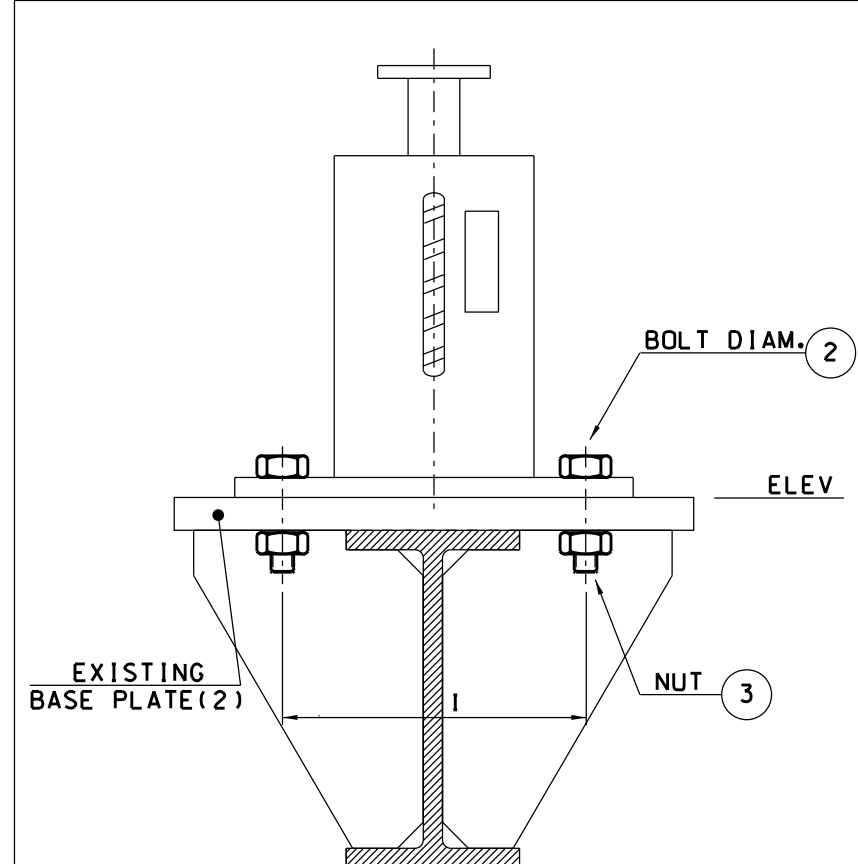
<b>Technip</b> TECHNIP INDIA LTD.	BASE PLATE ON STEEL SHAPES		SP04
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING	TPIL DRAWING NO.	XXXXXXXXXX-000-STC-1394-24	
		SHEET NO.	REV.
		1 of 1	A



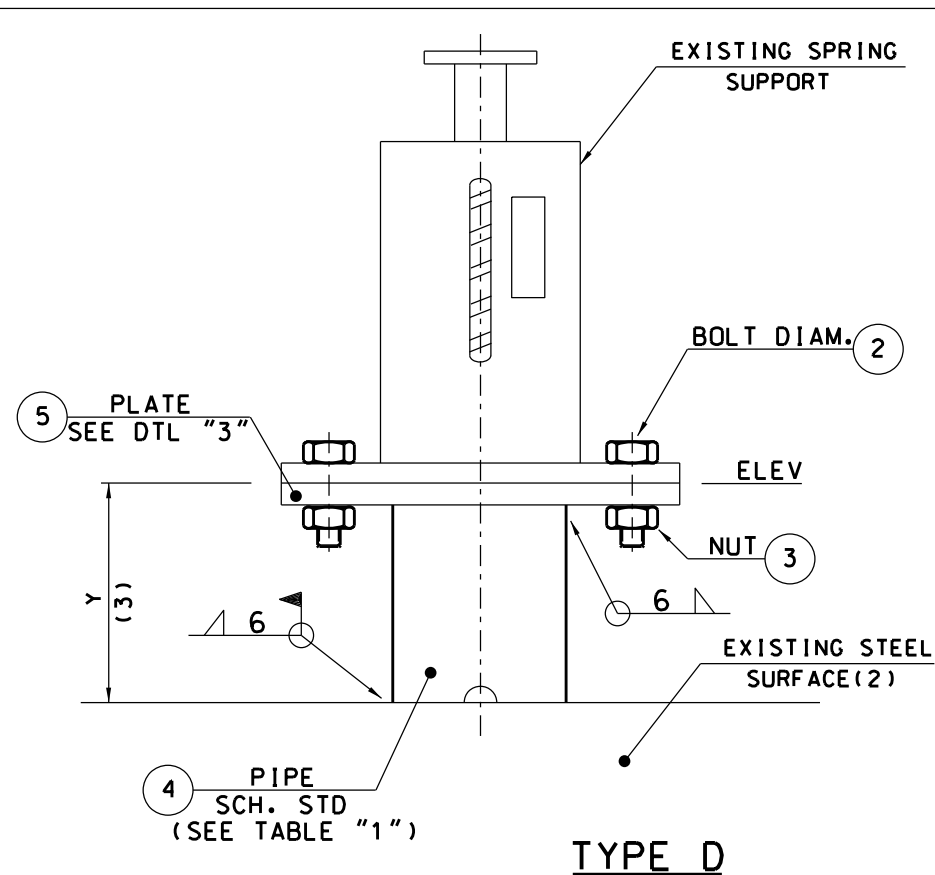
**TYPE A**  
FOR UNPAVED AREA



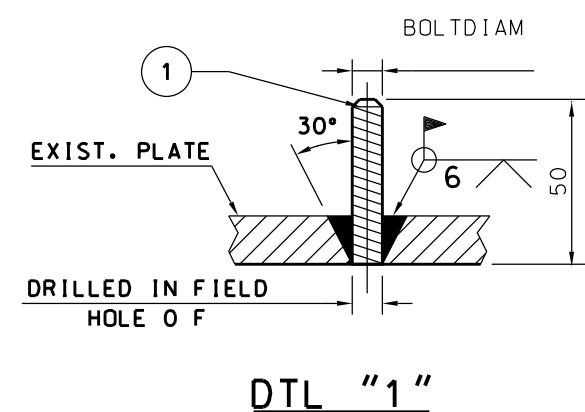
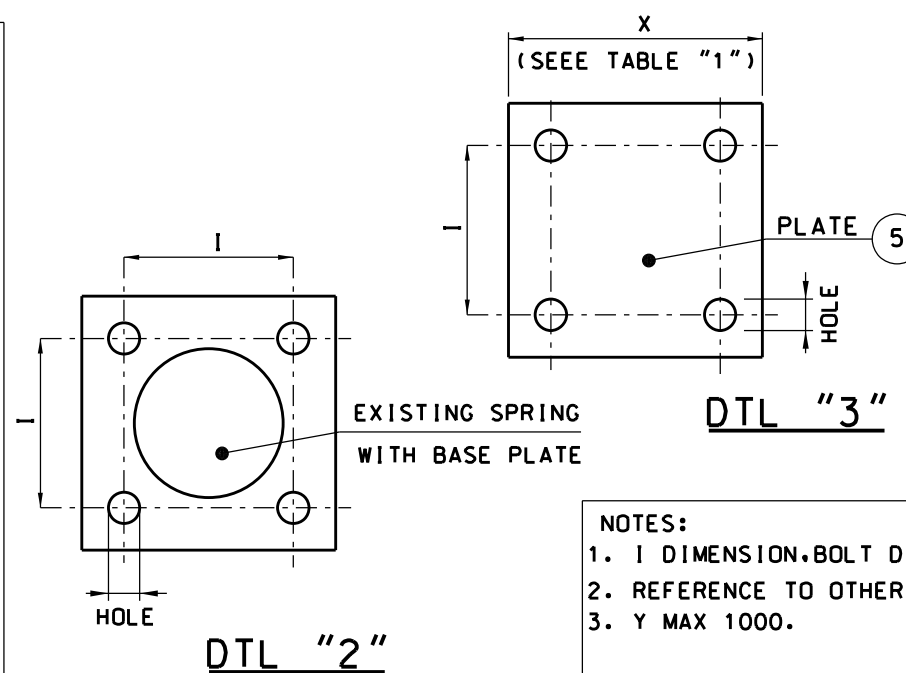
**TYPE B**  
FOR PAVED AREA



**TYPE C**  
FOR STEEL BEAM



**TYPE D**



NOTES:

1. I DIMENSION, BOLT DIAMETER AND HOLE DIAMETER SHALL BE ACCORDING TO SPRING VENDOR CATALOGUE.
2. REFERENCE TO OTHER SUPPORT. IT MUST BE INDICATED ON ISOMETRIC.
3. Y MAX 1000.

(5)	PLATE	1	PLATE THK 10	A36
(4)	COLUMN	1	PIPE SCH. STD	A53 B
(3)	NUT	4	BOLT DIAM	A194 2H
(2)	BOLT	4	BOLT DIAM	A193 B7
(1)	STUD BOLT	4	ROD BOLT DIAM	A36
ITEM	DESCRIPTION	QTY.	DETAIL	MATERIAL

Support Mark

SP05 TYPE SIZE Y

Positional Mark

ELEV

**Technip**  
TECHNIP INDIA LTD.

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

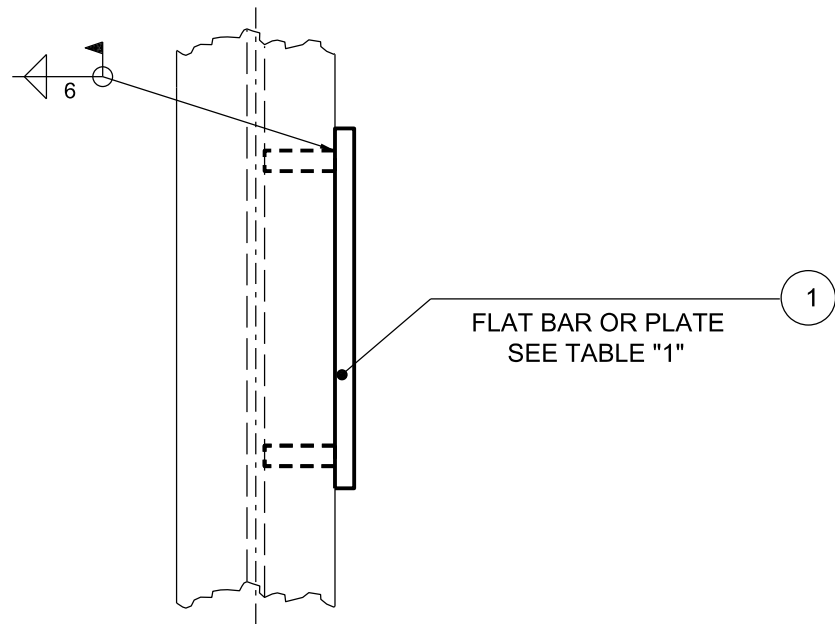
BASE FOR SPRING BASES

SP05

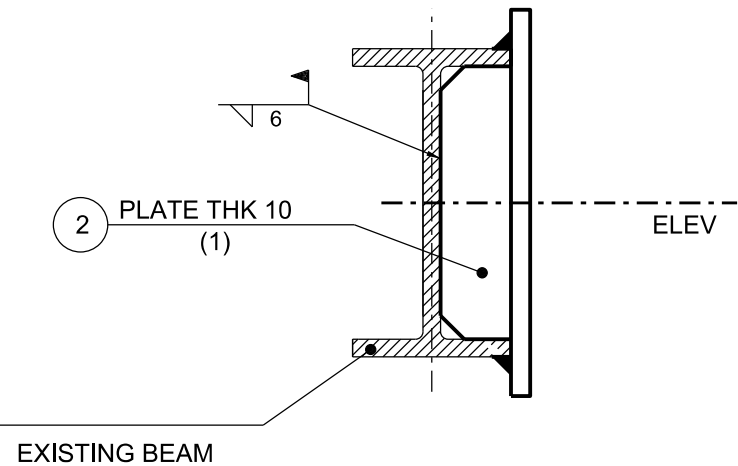
TPIL DRAWING NO.

XXXXXXXXXX-000-STC-1394-25

SHEET NO. REV.  
1 of 1 A



TOP VIEW



WIDTH 150 TO 400

ELEVATION VIEW

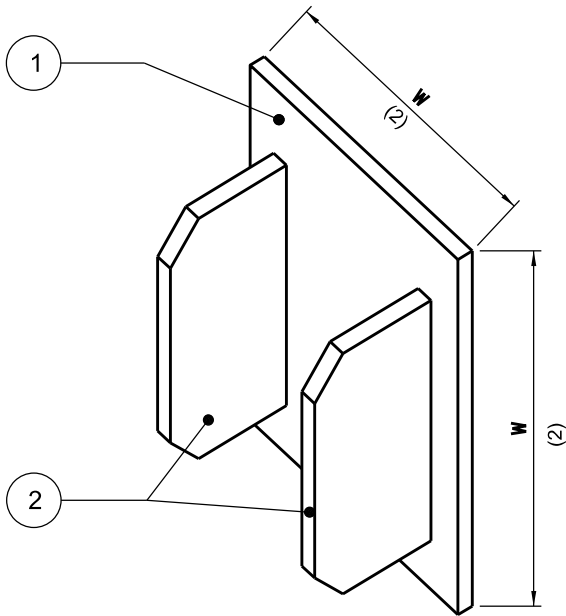


TABLE "1"		
	W	THK
FLAT BAR	150	10
	200	10
PLATE	250	15
	300	15
	350	15
	400	15

- NOTES:
1. STIFFENING PLATE TO BE CUT AND FORM AT ERECTION
  2. DIMENSION W IS LIMITED FROM 150 TO 400, WITH STEP 50.

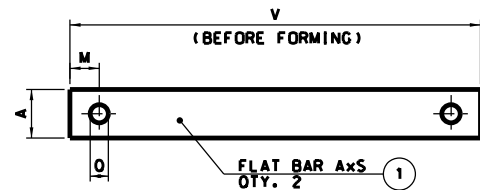
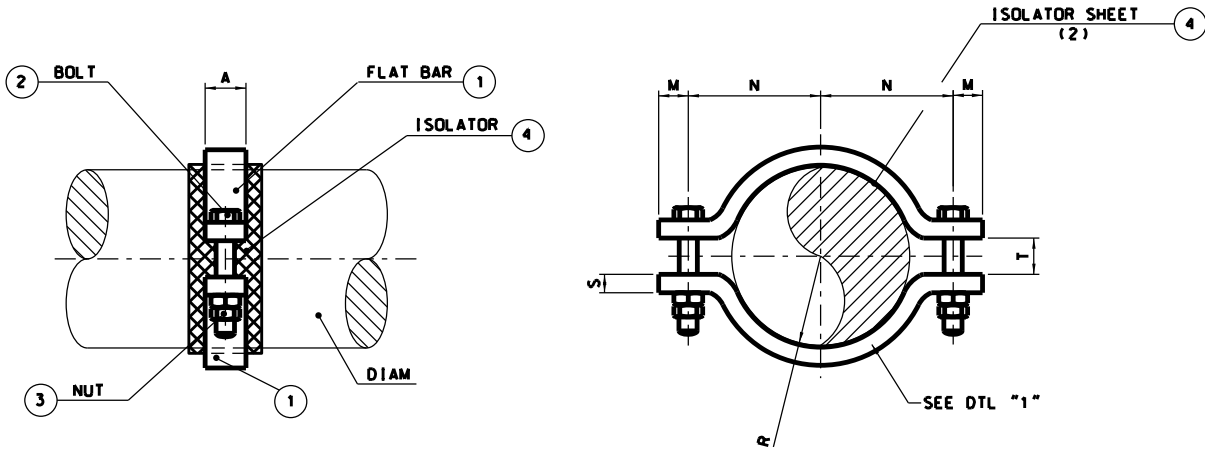
Support Mark

SP06	W	ELEV
------	---	------

○				
○				
②	STIFFENER	2	THK.10	A36
①	BASE	1	SEE TABLE 1	A36
ITEM	DESCRIPTION	QTY.	DETAIL	MATERIAL

<b>Technip</b> <small>TECHNIP INDIA LTD.</small>		VERTICAL PLATE ON STEEL SHAPES		<b>SP06</b>	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		TPIL DRAWING NO.	XXXXXXXXXXX-000-STC- 1394-26	SHEET NO. 1 of 1	REV. A





DTL "1"

TABLE "1" (3)									
DIAM	BOLT	A	M	N	O	R	S	T	V (1)
1/2"	M8x40	30	20	26	10	11	5	8	112
3/4"	M8x40	30	20	28	10	14	5	8	120
1"	M8x40	30	20	32	10	17	5	8	130
1 1/2"	M8x40	30	20	39	10	24	5	8	155

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

- NOTES:
- APPROXIMATE LENGHT FOR HALF CLAMP BEFORE FORMING.
  - A SHEET OF INSULATING MATERIAL (ELASTOMERIC BAND) SHALL BE INSERTED BETWEEN CARBON STEEL CLAMP AND PIPE
  - CLAMP DIMENSION TO BE ADAPTED ACCORDING TO FABRICATION OR MANUFACTURER SUPPLY

Support Mark

ME01DIAMMATCL

Technip

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

CLAMP  
FOR DIAM 1/2" TO 1 1/2"

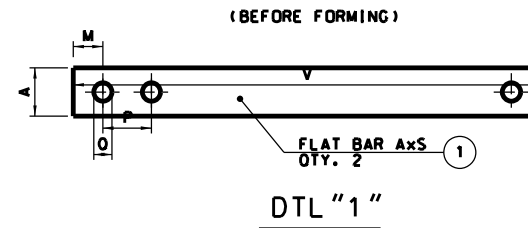
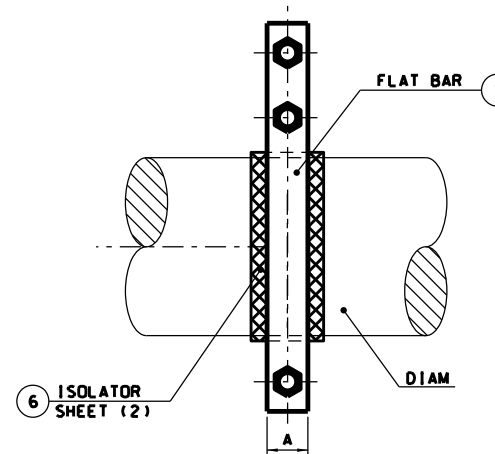
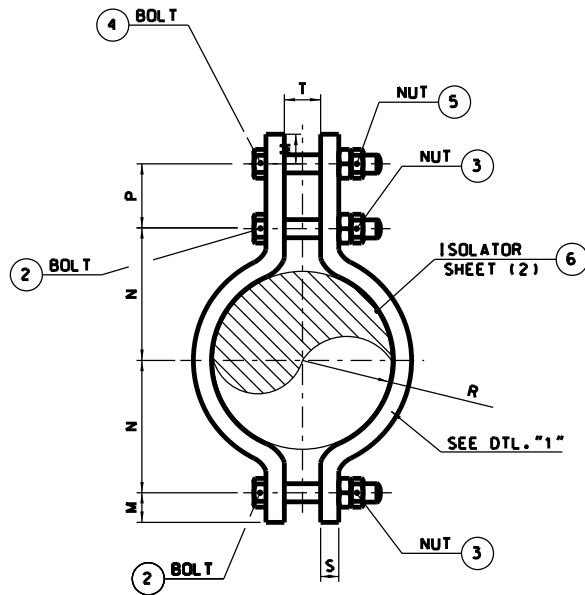
XXXXXX000STC - 1395 - 01

ME01

1 of 10

ProjectUnitDoc. Code & Serial No. PageRev.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CL	CG	AS	AH	SS(2)
④	ISOLATOR	1	SHEET THK. 2	/	/	/	NEOPRENE	/	/
③	NUT	4	SEE TABLE "1"	A194 2H	A194 2H	A194 2H	A194 2H(C)	A194 2H	A194 8
②	BOLT	2	SEE TABLE "1"	A193 87	A193 87	A320 L7	A193 87(C)	A193 87	A193 88
①	STRIP	2	FLAT BAR AxS	A36	A516-60	A516-60	A36 (C)	A36	A387-11
				A36	A240-304				



GUIDE DOCUMENT FOR SITE USE ONLY. SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

- NOTES:
1. APPROXIMATE LENGTH FOR HALF CLAMP BEFORE FORMING.
  2. A SHEET OF INSULATING MATERIAL (ELASTOMERIC BAND) SHALL BE INSERTED BETWEEN CARBON STEEL CLAMP AND PIPE
  3. CLAMP DIMENSION TO BE ADAPTED ACCORDING TO FABRICATION OR MANUFACTURER SUPPLY

Support Mark

ME02 DIAM MATCL

TABLE "1" (3)										
DIAM	BOLT	A	M	N	P	O	R	S	T	V (1)
1/2"	M8x40	30	20	26	40	10	11	5	8	152
3/4"	M8x40	30	20	28	40	10	14	5	8	160
1"	M8x40	30	20	32	40	10	17	5	8	170
1 1/2"	M8x40	30	20	39	40	10	25	5	8	195

6	ISOLATOR	1	SHEET THK. 2	/	/	/	/	/	/	ELASTOMER	/		
5	NUT	2	SEE TABLE "1"	A194 2H	A194 2H	A194 2H	A194 2H(C)	A194 2H	A194 2H	A194 2H	A194 2H		
4	BOLT	1	SEE TABLE "1"	A193 87	A193 87	A193 87	A193 87(C)	A193 87	A193 87	A193 87	A193 87		
3	NUT	4	SEE TABLE "1"	A194 2H	A194 2H	A194 2H	A194 2H(C)	A194 2H	A194 8	A194 2H	A194 8		
2	BOLT	2	SEE TABLE "1"	A193 87	A193 87	A320 L7	A193 87(C)	A193 87	A193 88	A193 87	A320 88		
1	STRIP	2	FLAT BAR A x S	A36	A516-60	A516-60	A36 (C)	A36	A387-11	A36	A240-304		
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL (2)	SH		

MATCL

Technip

CLAMP ON HORIZONTAL PIPE  
FOR DIAM 1/2" TO 1 1/2"

ME 02

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX

000

STC - 1395 - 02

1 of 1

0

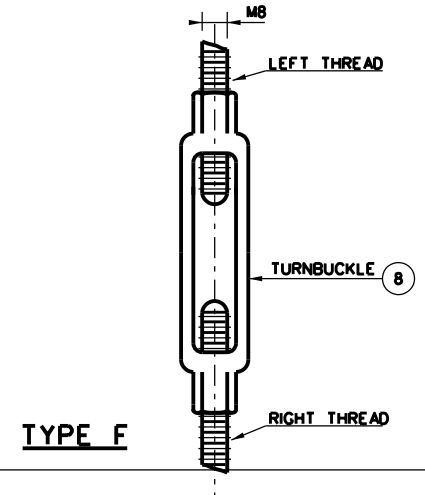
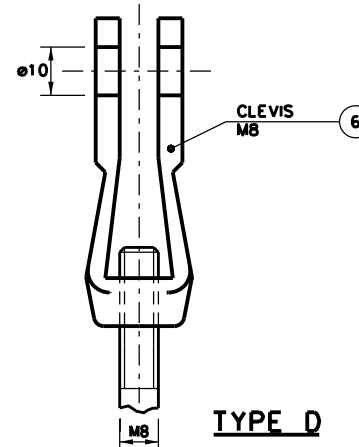
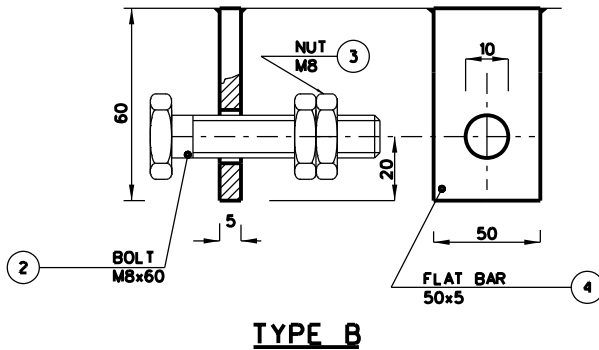
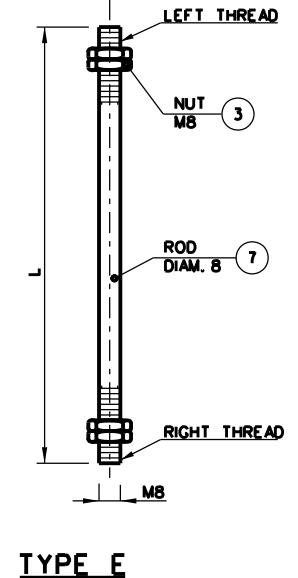
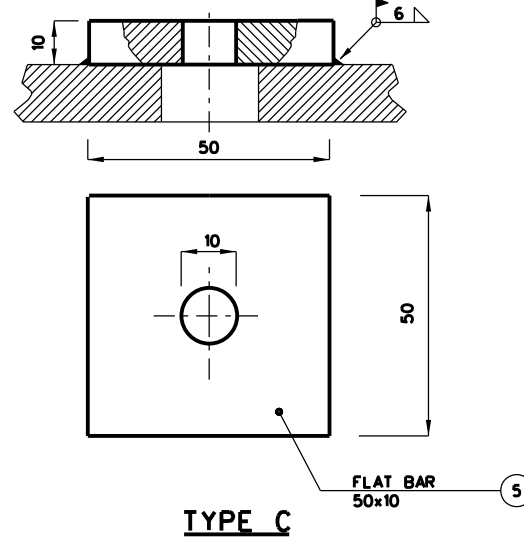
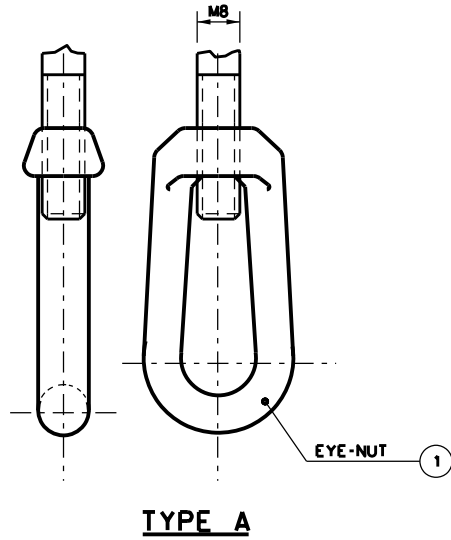
Project

Unit

Doc. Code & Serial No.

Page

Rev.



GUIDE DOCUMENT FOR SITE USE ONLY. SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH
8	TURNBUCKLE	1	M8	A668-0	A668-0	A668-0	A668-0	A668-0	A668-0	A668-0	
7	TIE-ROD	1	ROD DIAM. 8	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	
6	CLEVIS	1	CLEVIS	A668-0	A668-0	A668-0	A668-0	A668-0	A668-0	A668-0	
5	WASHER	1	FLAT BAR 50x10	A36	A36	A36	A36	A36	A36	A36	
4	CLIPS	1	FLAT BAR 50x5	A36	A36	A36	A36	A36	A36	A36	
3	NUT	2/4	M8	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H	
2	BOLT	1	M8x60	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	
1	EYE-NUT	1	EYE-NUT	A668-0	A668-0	A668-0	A668-0	A668-0	A668-0	A668-0	

NOTES:

1. DIMENSIONS ADAPTED ACCORDING TO MANUFACTURER SUPPLY

Support Mark

ME03 TYPE

**Technip**

THREADED ANCILLARY  
FOR DIAM 1/2" TO 1 1/2"

ME03

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1395 - 03	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.

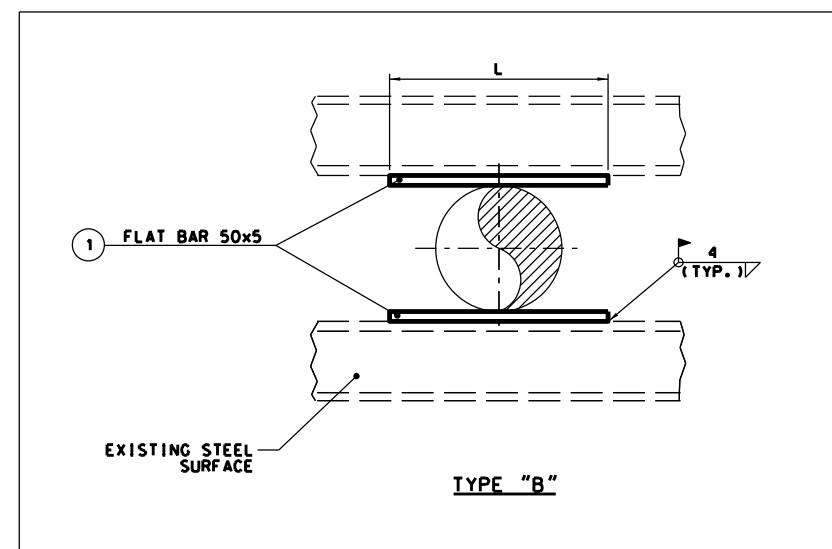
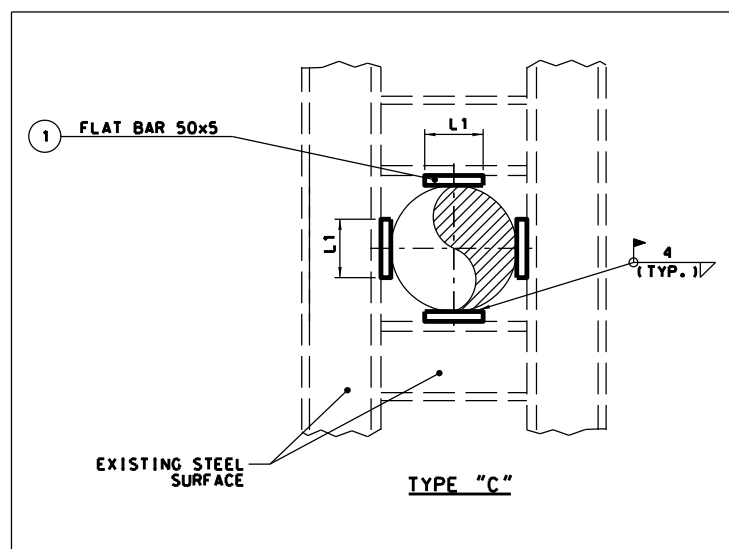
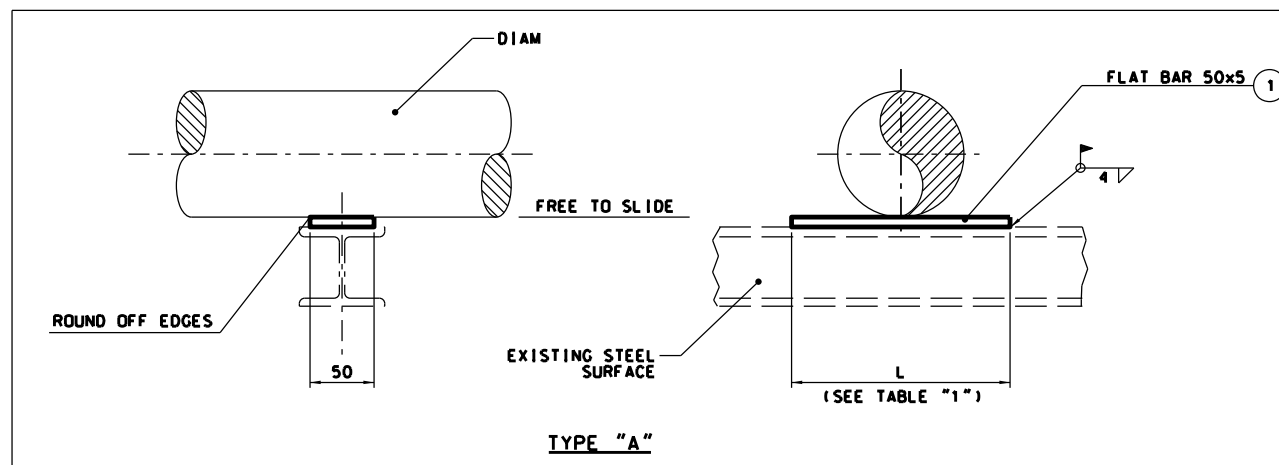


TABLE "1"

DIAM	L	L 1
1 1/2"	50	10
3/4"	50	20
1"	80	20
1 1/2"	80	30

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT

**NOTES:**

1. MAY BE USED AS FIELD SHIM.

Support + Mark

ME04	DIAM	TYPE	MATCL
------	------	------	-------

## Technip

WEDGE  
FOR DIAM  $1\frac{1}{2}$ " TO  $1\frac{1}{2}$ "

ME 04

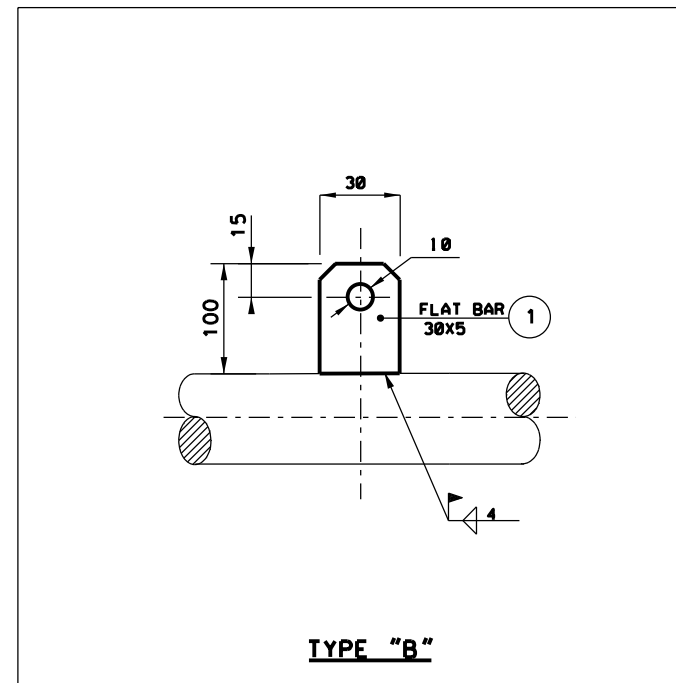
STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING


XXXXXX
Project

000	STC - 1395 - 04
Unit	Doc. Code & Serial No.

1 of 1	0
Page	Rev

①	WEDGE	1	FLAT BAR 50x5	A36	/	/	A36 (G)	A36	/	A240-304	A240-304		
ITEM	DESCRIPTION	QTY.	DETAIL	(1) CS	CH	CL	CG	AS	AH	SL	SH		
										MATCH			



<div></div>	WELDED CLIPS FOR DIAM 1/2" TO 1 1/2"			ME 05		
	STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING	XXXXXX	000	STC - 1395 - 05	1 of 1	0
	Project	Unit	Doc. Code & Serial No.	Page	Rev.	

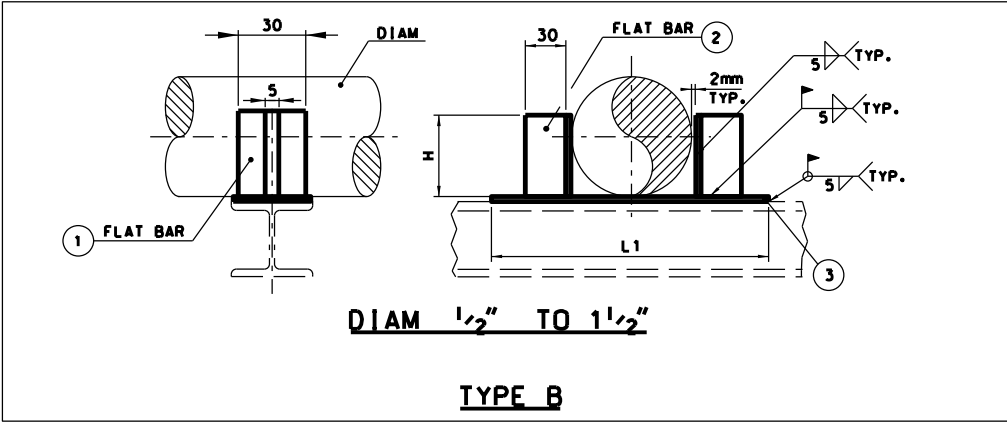
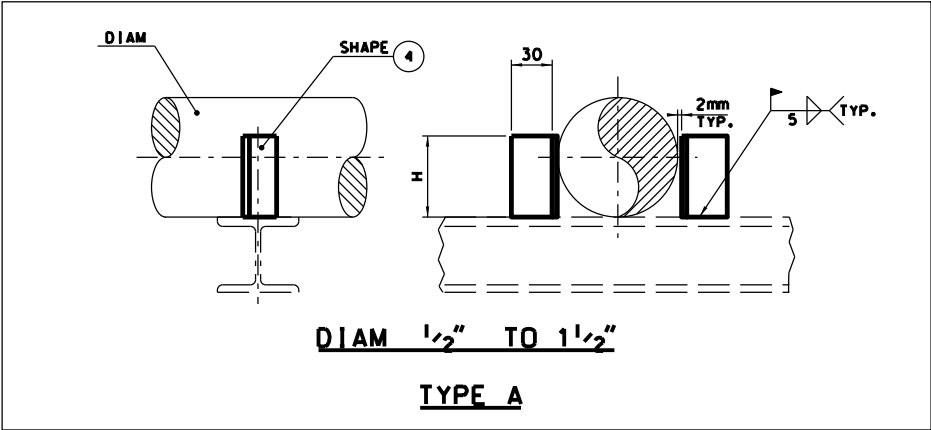


TABLE "1"					
DIAM	H	L1			
1/2"	20	100			
3/4"	25	120			
1"	30	140			
1 1/2"	40	160			

TABLE "2"	
MATCL	TYPE
CS-AS	A
CH-AH	A
CG-SS-SH	B

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

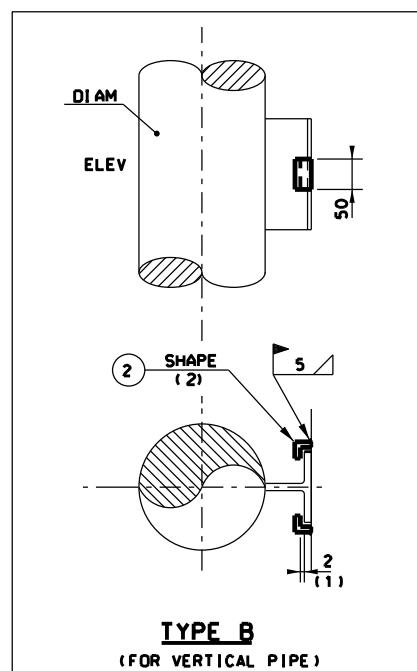
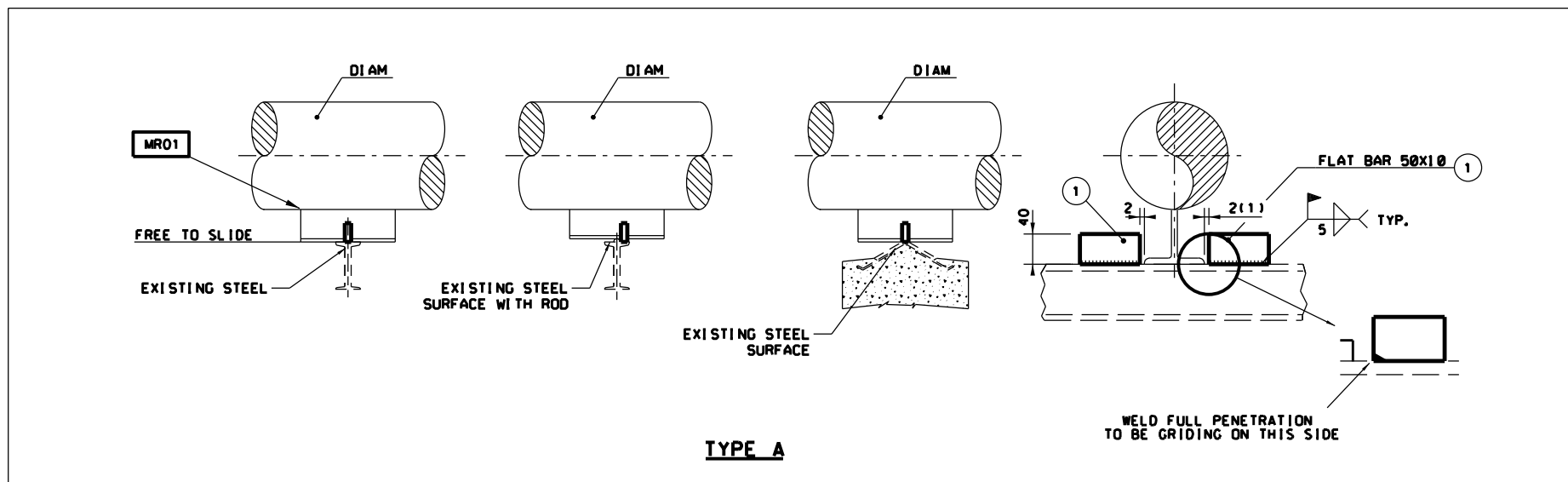
NOTES:

④	GUIDE	2	SHAPE ISA30	A36	A387-11	/	/	A36	A387-11	/	/			
③	WEDGE	1	FLAT BAR 50x5	/	/	/	A36(G)	/	/	A240-304	A240-304			
②	STIFFENER	2	FLAT BAR 30x5	/	/	/	A36(G)	/	/	A240-304	A240-304			
①	GUIDE PLATE	2	FLAT BAR 30x5	/	/	/	A36(G)	/	/	A240-304	A240-304			
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH			
MATCL														

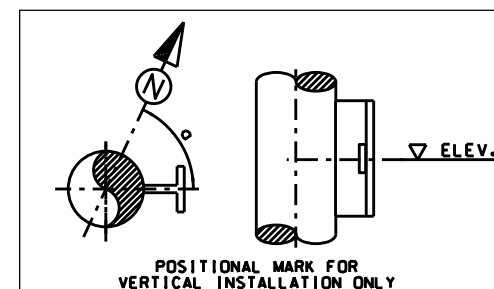
Support Mark

MG01	DIAM	TYPE	MATCL
------	------	------	-------

<b>Technip</b>		GUIDE ON UNINSULATED PIPE FOR DIAM 1/2" TO 1 1/2"				MG01	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		XXXXXX	000	STC - 1395 - 06		1 of 1	0
Project		Unit		Doc. Code & Serial No.		Page	Rev.




GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT



**NOTES:**  
1. MAY GAP AT ERECTION  
2. CUT AT ERECTION

[illegible]

Support Mark		Positional Mark		
MG02 TYPE		ELEV a		
	GUIDE FOR INSULATED PIPE FOR DIAM 1 1/2" TO 1 1/2"			MG02
	STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING	XXXXXX 000	STC - 1395 - 07	1 of 1 0
	Project	Unit	Doc, Code & Serial No.	Page Rev.

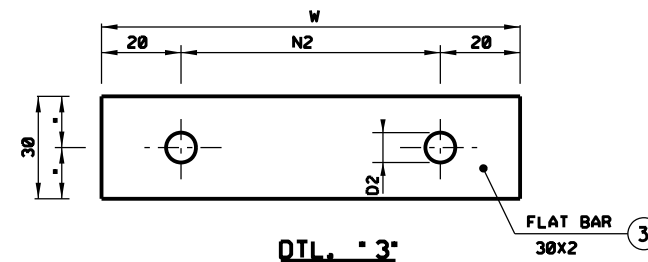
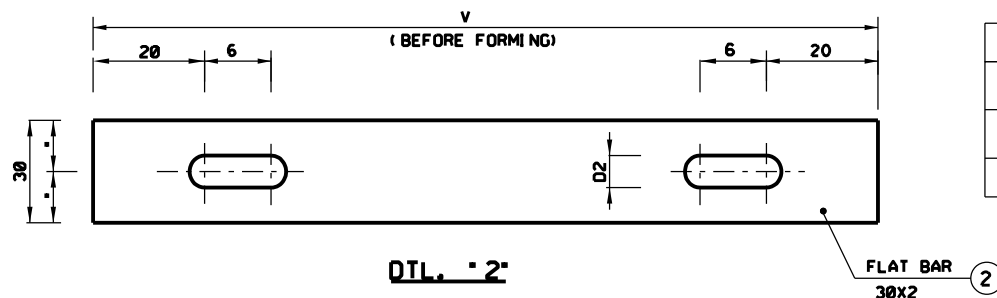
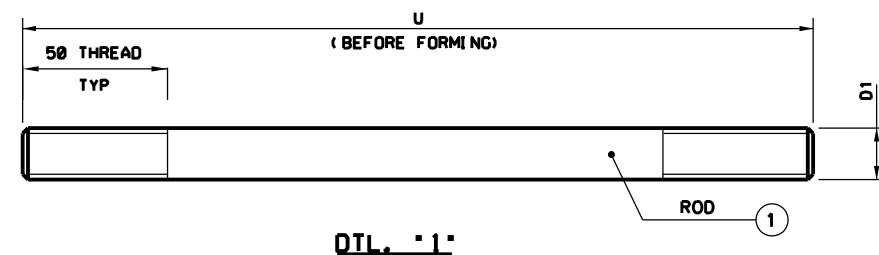
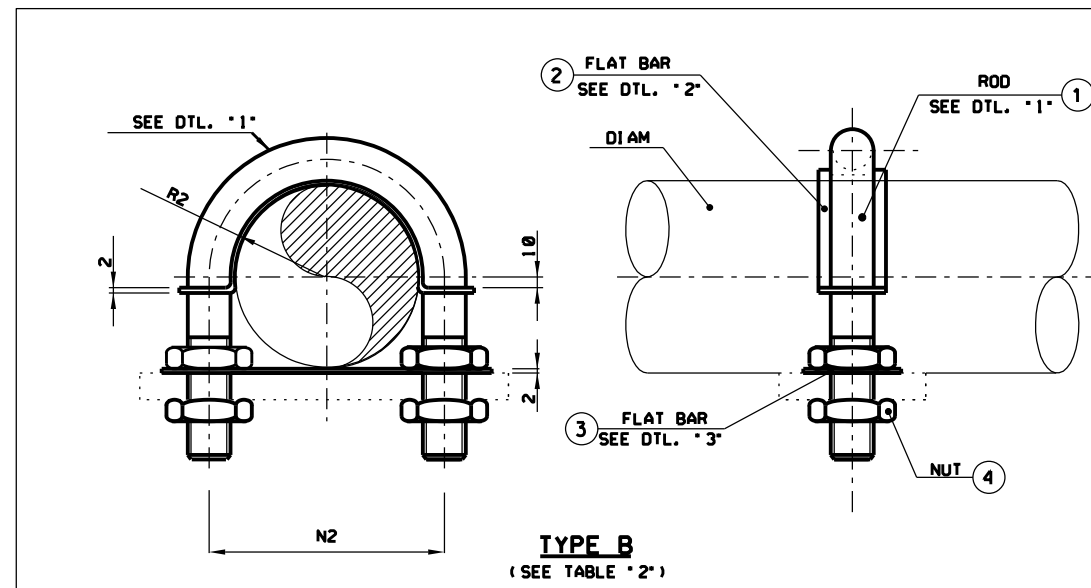
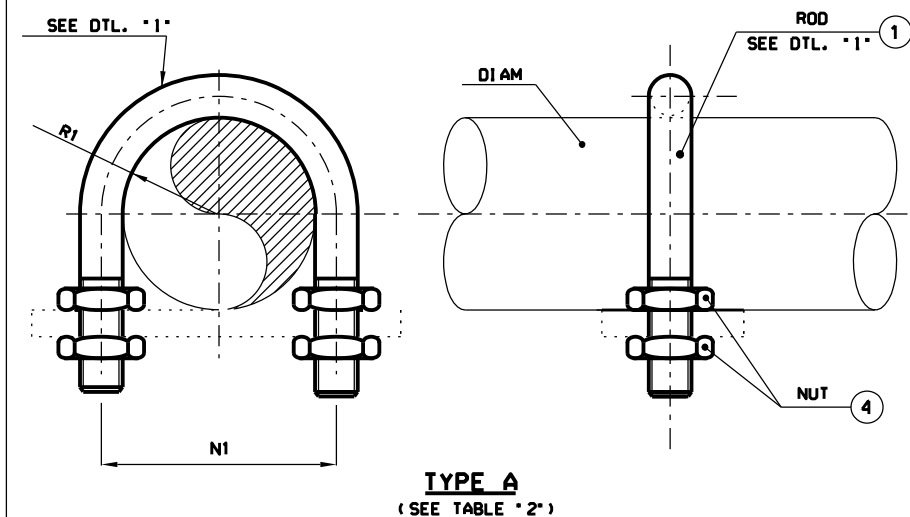


TABLE "2"	
MATCL	TYPE
CS, CH, CL, AS, AH	A
CG, SS, SH	B

TABLE "1" (1)									
DIAM	D1	D2	N1	N2	R1	R2	U	V	W
1/2"	10	12	32	36	11	13	104	83	76
3/4"	10	12	38	42	14	16	114	87	82
1"	10	12	44	48	17	19	126	92	88
1 1/2"	12	14	60	64	25	27	156	114	104

NOTES:

1. U-BOLT DIMENSIONS TO BE ADAPTED ACCORDING TO FABRICATION OR MANUFACTURER SUPPLY

GUIDE DOCUMENT FOR SITE USE ONLY. SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH	NI
④	NUT	4	SEE TABLE "1"	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H		
③	BASE	1	FLAT BAR 30x2	/	/	/	A36 (G)	/	/	A240 304		
②	STRIP	1	FLAT BAR 30x2	/	/	/	A36 (G)	/	/	A240 304		
①	U-BOLT	1	ROD SEE TABLE "1"	A193 B7	A193 B7	A320 L7	A193 B7	A193 B7	A193 B7	A193 B7		

Support Mark

MG03 DIAM TYPE MATCL

Technip

U-BOLT NON GRIPPED  
FOR DIAM 1/2" TO 1 1/2"

MG03

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX

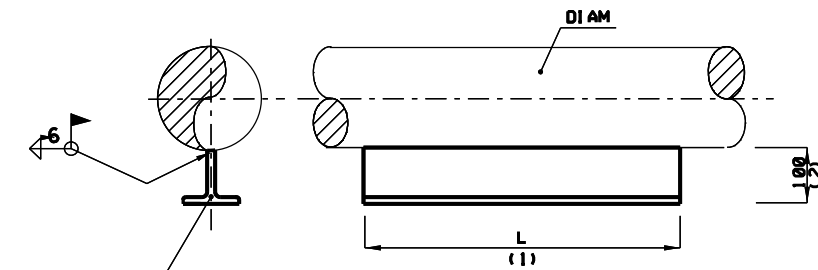
000

STC-1395-08

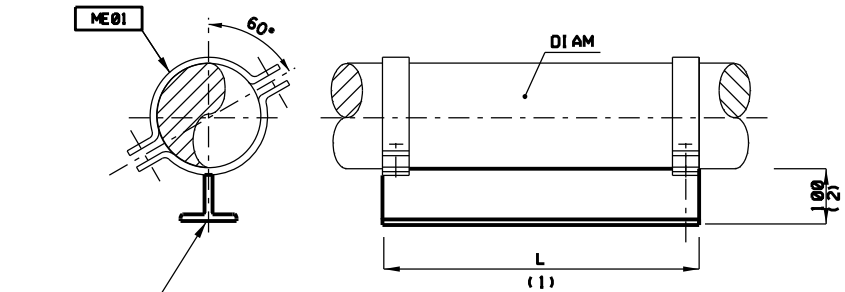
1 of 1

0

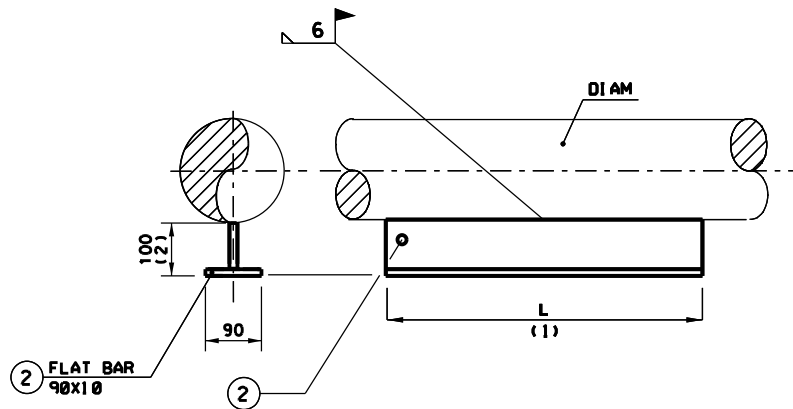




TYPE A



TYPE B



TYPE C

TABLE "1"

MATCL	TYPE
CS	A
CG	B
CH+CL+AS AH+SS+SH	B+C

ONLY FOR  
INSULATED LINES.

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT

NOTES:

1. L =200. 300. 500 or 700
2. H CAN BE INCREASED UPTO 150

Support Mark

MR01 DIAM TYPE MATCL

**Technip**

SHOES  
FOR DIAM 1/2" TO 1 1/2"

MR01

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1395 - 09	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH
2	SHOE	2	FLAT BAR 90x10	/	A387-11	A516-60	A36	A387-11	A387-11	A240-304	A240-304
1	SHOE	1	SHAPE HALF MB200	A36	/	/	/	/	/	/	/

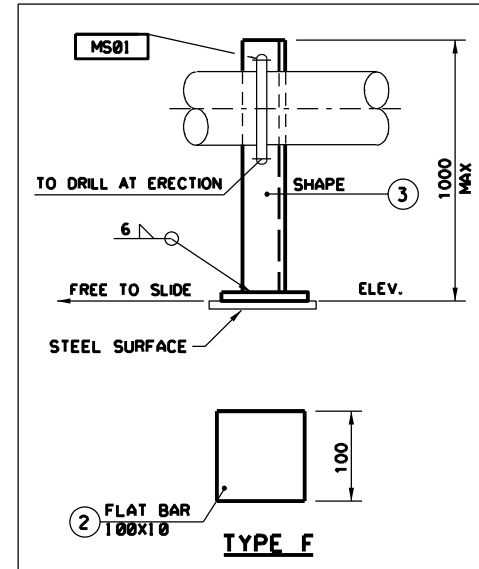
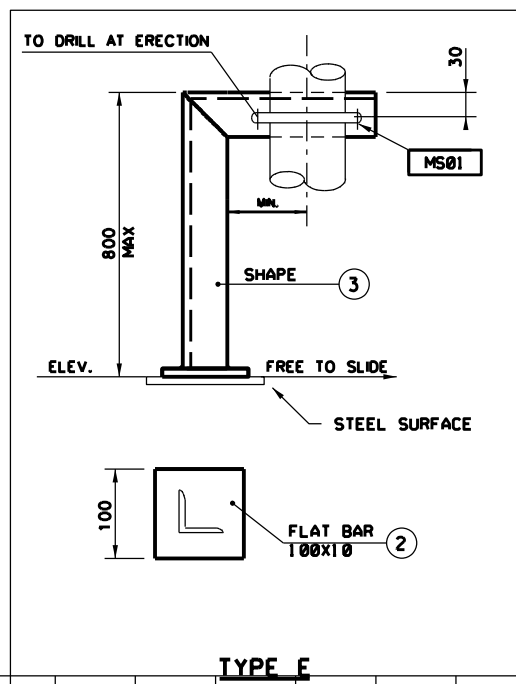
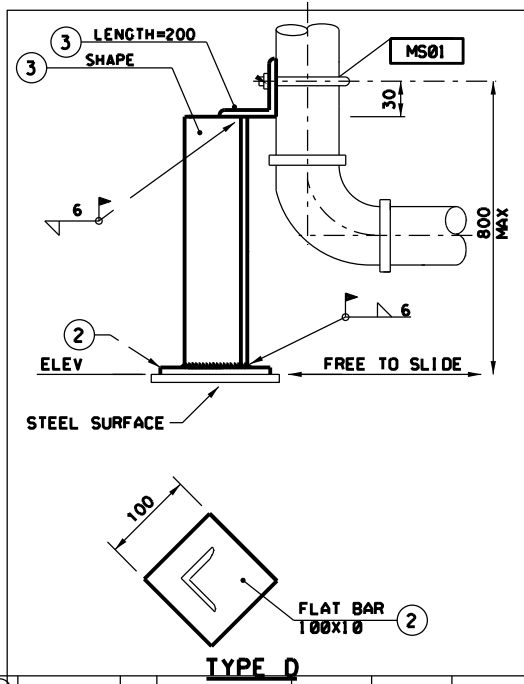
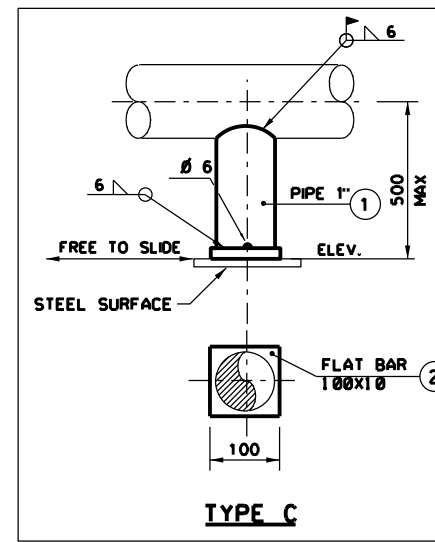
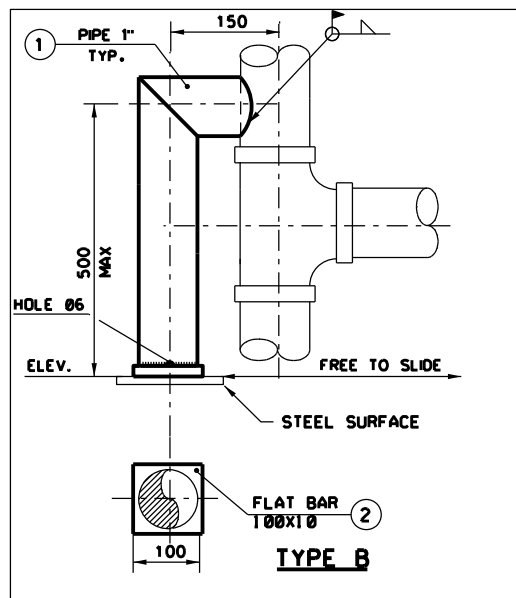
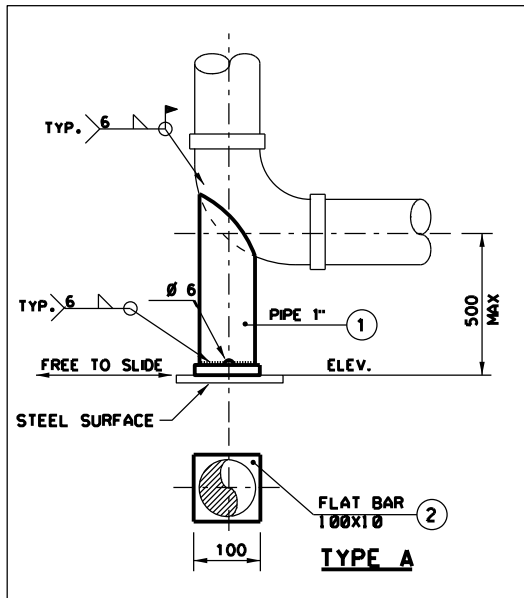


TABLE "1"	
MATCL	TYPE
CS, CH, CL AS, AH, SS, SH	A-B-C
CS, CG, AS, SS	D-E-F

GUIDE DOCUMENT FOR SITE USE ONLY. SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

NOTES:

Support Mark

MR02 TYPE MATCL

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH	NI
3	LEG	1	SHAPE ISA50	A36	/	/	A36C	A36	/	A36	/	
2	BASE	1	FLAT BAR 100x10	A36	A36	A36	A36	A36	A36	A36	A36	
1	DUMMY	1	PIPE 1" SCH. STD	A106 GrB	A106 GrB	A333-6	/	A335-P11	A335-P11	A312-TP304	A312-TP304	

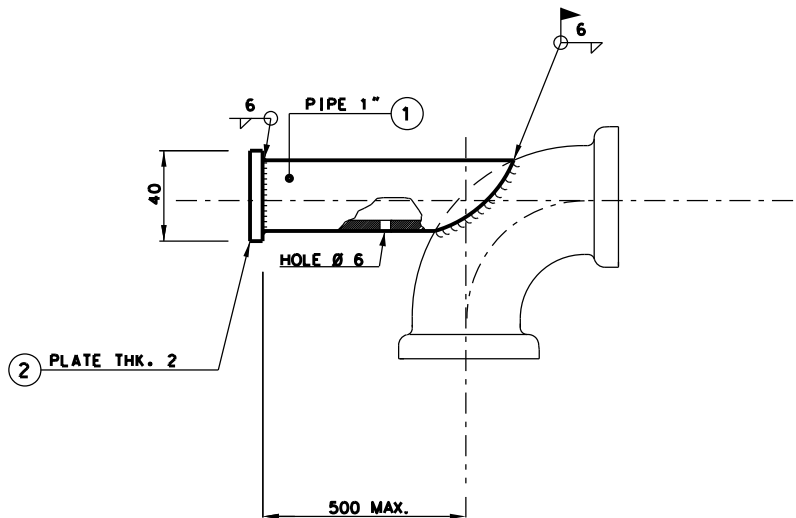
**Technip**

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

VERTICAL DUMMY LEG  
FOR DIAM 1" TO 1 1/2"

MR02

XXXXXX	000	STC - 1395 - 10	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.

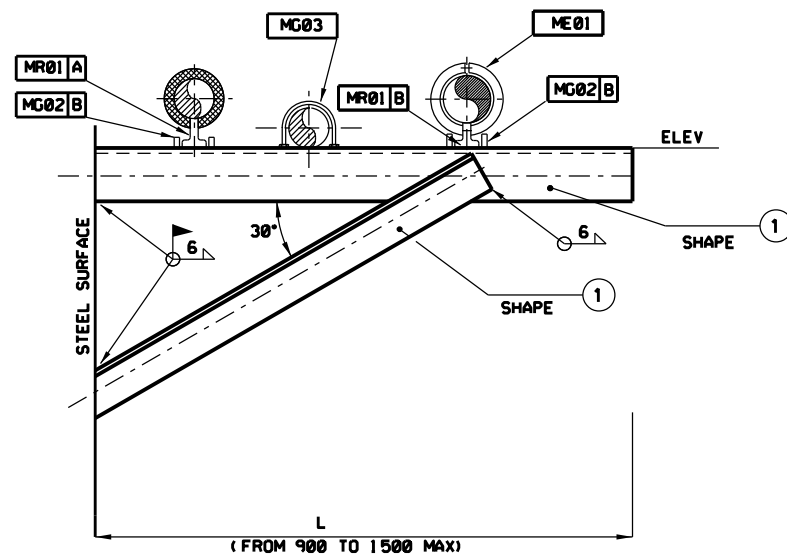


GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT

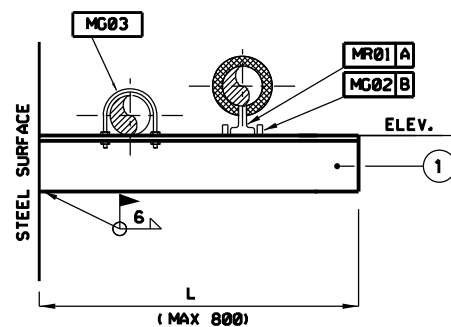
NOTES:.  
1. NOT USE FOR PIPE WITH P.W.H.T.

2	COVER	1	PLATE THK.2	A36	A36	A36	/	A36	A36	A36	A36			
1	DUMMY	1	PIPE 1" SCH.STD	A106 GrB	A106 GrB	A333-6	/	A335 P11	A335 P11	A312-TP304	A312-TP304			
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH			
MATCL														

Support Mark						
MR03		MATCL				
<b>Technip</b>		HORIZONTAL DUMMY LEG ON ELBOW FOR DIAM 1" TO 1½"			MR03	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		XXXXXX	000	STC - 1395 - 11	1 of 1	0
		Project	Unit	Doc. Code & Serial No.	Page	Rev.



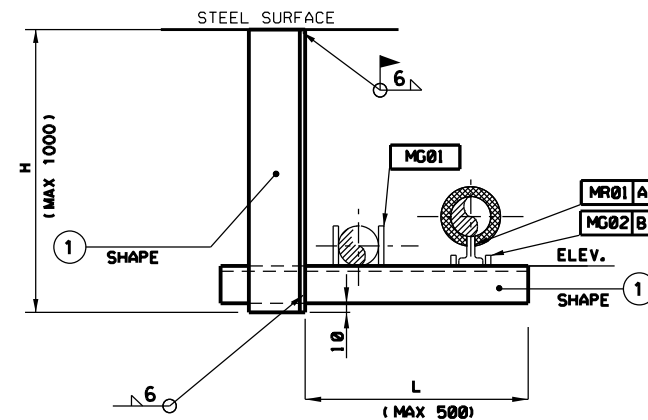
**TYPE A**



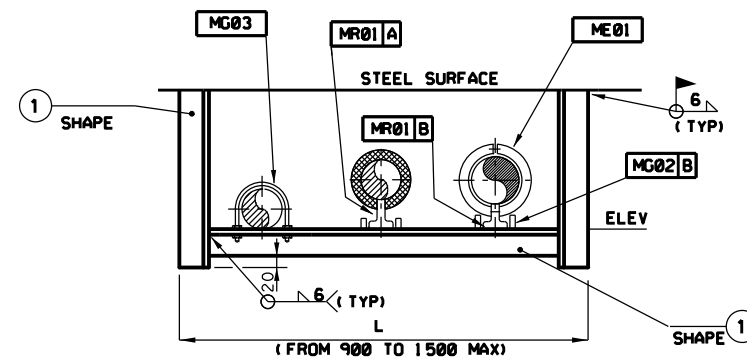
**TYPE B**

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT

(1)	BEAM	1	SHAPE ISAT5	A36	A36	A36	A36	A36	A36	A36	A36		
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH		
				MATCL									



TYPE C



TYPE D

**NOTES:**

Support t Mark

MR04	TYPE
------	------

## Technip

BEAM SUPPORT ON HORIZONTAL  
PIPE FOR DIAM  $1\frac{1}{2}$ " TO  $1\frac{1}{2}$ "

**MR04**

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX

Unit

STC -1395 - 12

Doc. Code &amp; Serial No.

1 of 1

Rev.

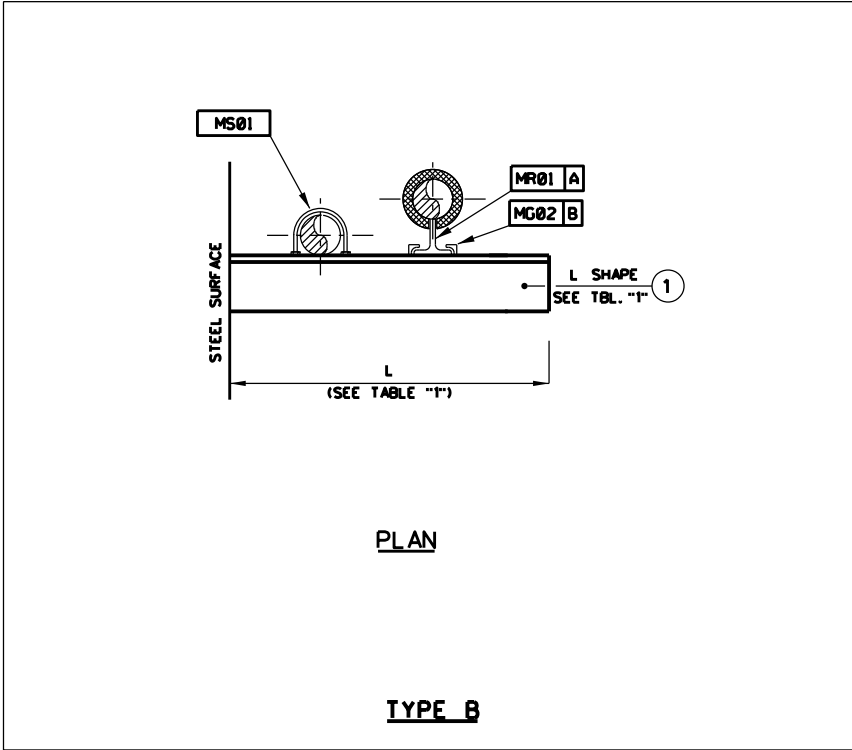
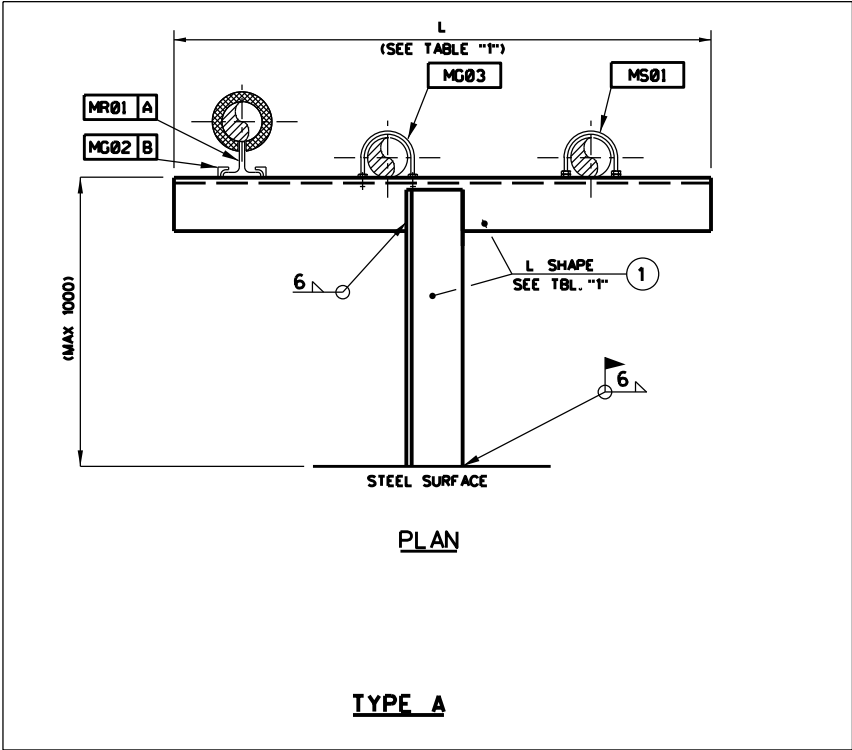


TABLE "1"	
SHAPE	MAX L
ISA50	500
ISA75	800
ISA100	1000

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

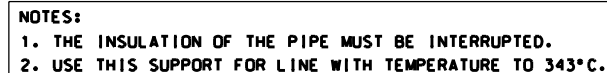
NOTES:

1	BEAM	1	SHAPE SEE TBL."1"	A36	A36	A36	A36	A36	A36	A36	A36			
ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH			
MATCL														

Support Mark

MR05 TYPE

Technip		BEAM SUPPORT WITH GUIDE ON VERTICAL PIPE DIAM 1/2" TO 1 1/2"			MR05	
STANDARD CONSTRUCTION DRAWING PLANT DESIGN AND PIPING		XXXXXX	000	STC -1395 - 13	1 of 1	0
Project		Unit	Doc. Code & Serial No.		Page	Rev.



Support + Mark
<b>MR06</b> TYPE

## Technip

SUPPORT ON VERTICAL PIPING  
FOR DIAM 1/2" TO 1 1/2"

MR06

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1395 - 14	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.

**TYPE A**  
**(1)**

**TYPE C**

**TYPE E**  
**(1)**

**TYPE B**  
(1)

**TYPE D**  
(1)

Rev.

## TYPE F



XXXXXX	000	STC - 1395 - 16	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.



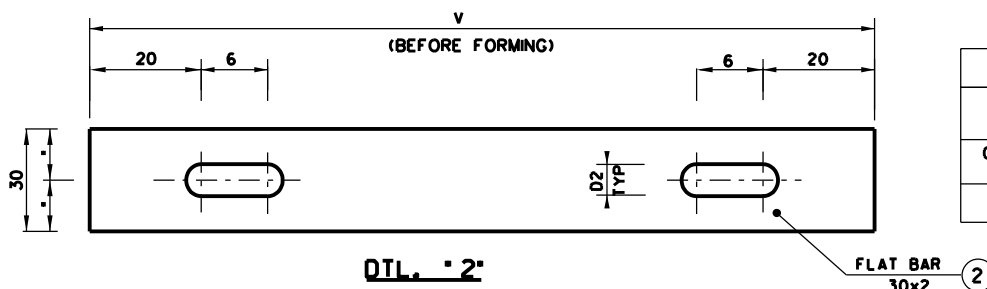
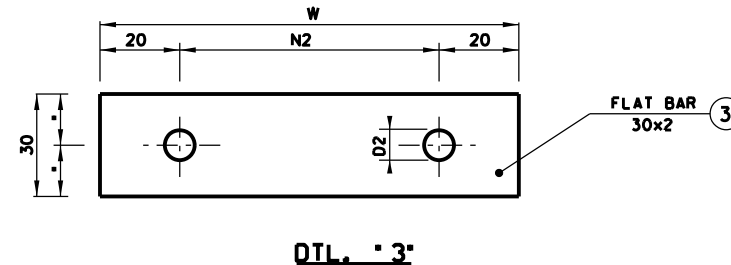
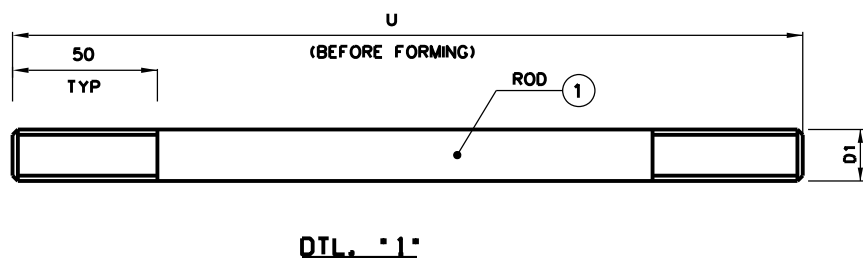
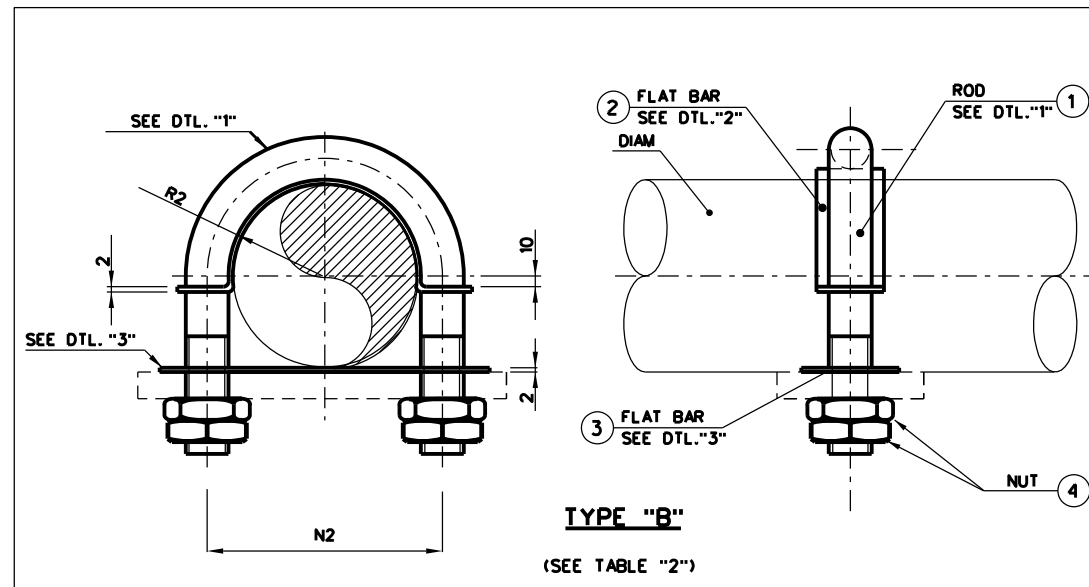
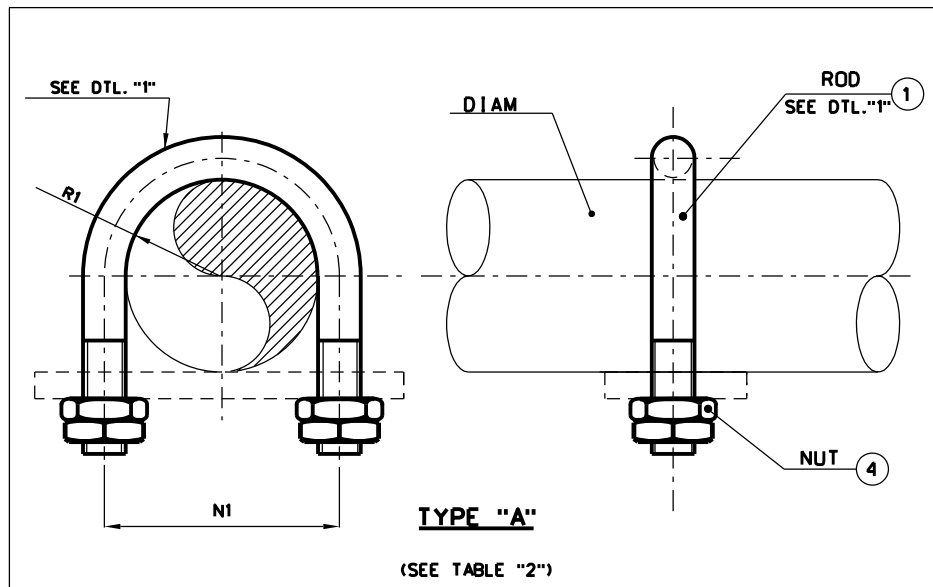


TABLE "2"	
MATCL	TYPE
CS, CH, CL, AS, AH	A
CG, SS, SH	B

TABLE "1" (1)									
DIAM	D1	D2	N1	N2	R1	R2	U	V	W
1/2"	10	12	32	36	11	13			76
3/4"	10	12	38	42	14	16			82
1"	10	12	44	48	17	19			88
1 1/2"	12	14	60	64	25	27			104

NOTES:

1. U-BOLT DIMENSIONS TO BE ADAPTED ACCORDING TO FABRICATION OR MANUFACTURER SUPPLY

GUIDE DOCUMENT FOR SITE USE ONLY. SITE CONTRACTOR TO DEFINE IN DETAIL EACH SUPPORT

ITEM	DESCRIPTION	QTY.	DETAIL	CS	CH	CL	CG	AS	AH	SL	SH	N1
④	NUT	4	SEE TABLE 1	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H	A194 2H		
③	BASE	1	FLAT BAR 30x2	/	/	/	A36 (G)	/	/	A240 304		
②	STRIP	1	FLAT BAR 30x2	/	/	/	A36 (G)	/	/	A240 304		
①	U-BOLT	1	ROD SEE TABLE 1	A193 B7	A193 B7	A320 L7	A193 B7	A193 B7	A193 B7	A193 B7		

Support Mark

MS01 DIAM TYPE MATCL

**Technip**

GRIPPED U-BOLT  
FOR DIAM 1/2" TO 1 1/2"

MS01

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC-1395-17	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.

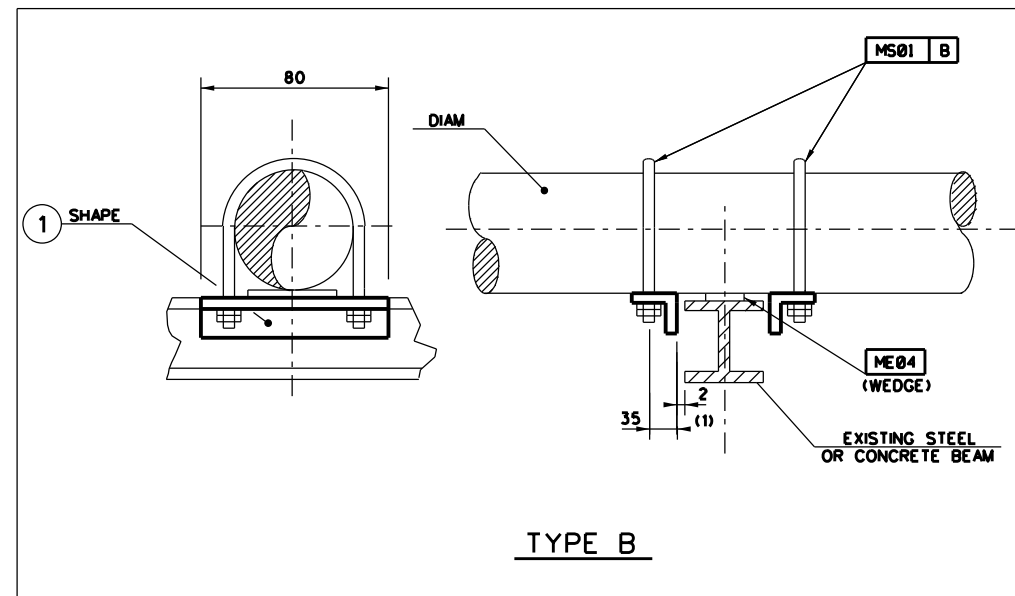
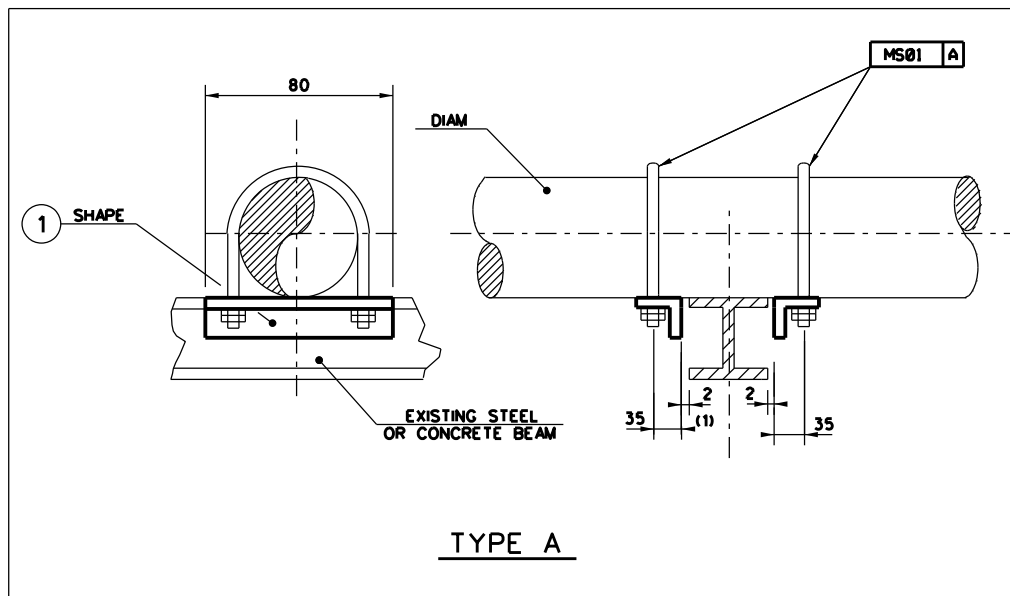


TABLE "1"

TABLE "1"	
MATCL	TYPE
CS,AS	A
CG,SS	B

GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT

**NOTES:**

1. MAX. GAP AT ERECTION
2. TO DRILL AT ERECTION ACCORDING TO U-BOLT DIMENSION

[illegible]

Support + Mark

MS02	DIAM	TYPE	MATCL
------	------	------	-------

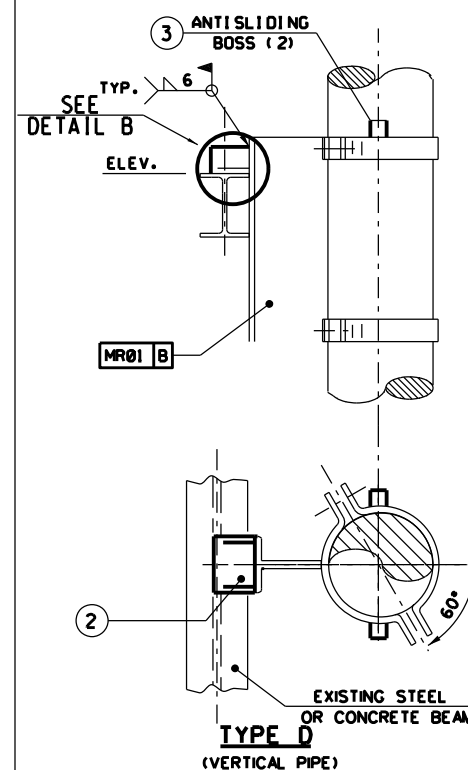
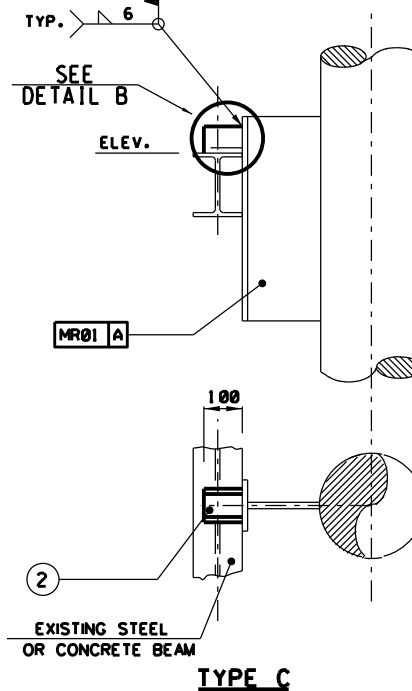
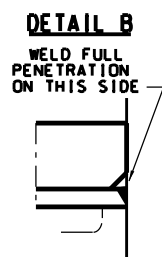
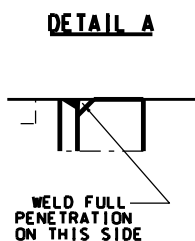
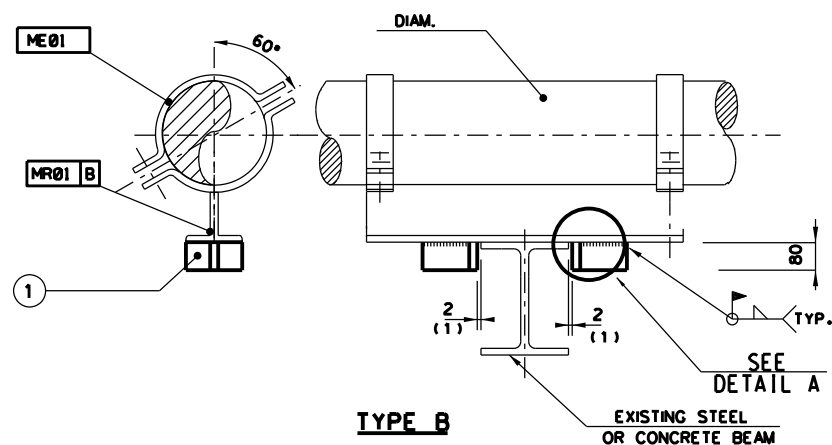
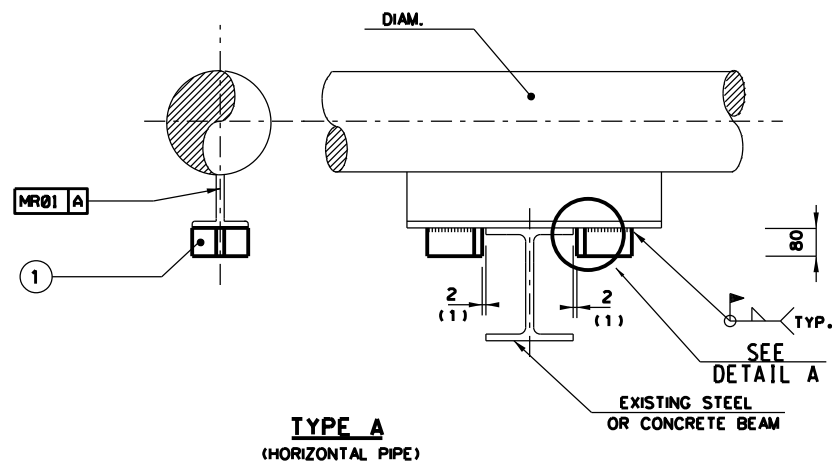
## Technip

CLAMPED STOP ON UNINSULATED  
LINES FOR DIAM  $1\frac{1}{2}$ " TO  $1\frac{1}{2}$ "

MS02

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX	000	STC - 1395 - 18	1 of 1	0
Project	Unit	Doc. Code & Serial No.	Page	Rev.



GUIDE DOCUMENT FOR SITE USE ONLY.SITE CONTRACTOR  
TO DEFINE IN DETAIL EACH SUPPORT

**NOTES:**

1. MAX. GAP AT ERECTION
2. MATERIAL AND SCHEDULE AS PER PIPING CLASS
3. USE ONLY FOR CRYOGENIC INSULATION LINES.

Support + Mark

<b>MS03</b>	<b>TYPE</b>
-------------	-------------

**Technip**

STOP FOR INSULATED LINES  
FOR DIAM  $1\frac{1}{2}$ " TO  $1\frac{1}{2}$ "

MS03

STANDARD CONSTRUCTION DRAWING  
PLANT DESIGN AND PIPING

XXXXXX



000

STC - 1395 - 19

1 of 1

0





[illegible]



 	<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks</b>	
	<b>CLIENT</b>		<b>IOCL Paradip Refinery</b>	
<b>PIPING STANDARDS – HOOKUP ASSEMBLY DRAWINGS</b>		<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-088-STD-1380-001	<b>Rev. No.</b> A
		<b>INDIAN OIL CORPORATION LIMITED</b>		Page 1 of 52

**PIPING STANDARDS**

**HOOKUP ASSEMBLY DRAWINGS**



**(For Standby SRU)**

			 <small>Written By</small> <small>Reganathan Sundarajan</small> <small>2020.03.12 10:52:51 +05'30'</small>	 <small>Checked By</small> <small>Loganathan Sudarshan</small> <small>2020.03.12 10:52:51 +05'30'</small>	 <small>Approved By</small> <small>Loganathan Sudarshan</small> <small>2020.03.12 10:54:08 +05'30'</small>	 <small>Authorized By</small> <small>MonteChristopher Jesumathan</small> <small>2020.03.12 12:20:28 +05'30'</small>
A	12-03-2020	ISSUED FOR DESIGN	SMM	SL	TI / SL	JMC
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED	AUTHORIZED

 	<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks</b>		
	<b>CLIENT</b>		<b>IOCL Paradip Refinery</b>		
<b>PIPING STANDARDS – HOOKUP ASSEMBLY DRAWINGS</b>		<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-088-STD-1380-001	<b>Rev. No.</b> A	Page 2 of 52

## CONTENTS

SECTION	SUBJECT	PAGE
1.0	SCOPE.....	3
2.0	CONFLICTS, DEVIATIONS AND CLARIFICATIONS .....	3
3.0	REFERENCE DOCUMENTS .....	3
4.0	HOOK-UPS ARRANGEMENT.....	3
	HOOK-UP ASSEMBLY DETAILS ON EQUIPMENTS .....	5
	HOOK-UP ASSEMBLY DETAILS ON PIPINGS .....	6

 	<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks</b>	
	<b>CLIENT</b>		<b>IOCL Paradip Refinery</b>	
<b>PIPING STANDARDS – HOOKUP ASSEMBLY DRAWINGS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-088-STD-1380-001	<b>Rev. No.</b> A	Page 3 of 52

## 1.0 SCOPE

This Project Specification covers the standard piping hook-ups for vents & drains, Instrument connections (pressure, temperature & orifice connections) for Standby SRU unit of “Standby SRU & Additional tanks” Project, IOCL Paradip Refinery, Odisha, India. The requirements specified herein shall govern besides the relevant codes and standards specified here.

## 2.0 CONFLICTS, DEVIATIONS AND CLARIFICATIONS

Any conflicts between this specification and other applicable Engineering Standards, Material Specifications, Standard Drawings, Engineering Procedures, Company Forms or Industry standards, specifications, Codes and forms shall be brought to the attention of Authorized Representative by the Contractor for resolution. Until the resolution is officially made by Authorized Representative, the most stringent requirement shall govern. Where a licensor specification is more stringent than those of this standard, the Licensor's specific requirement shall apply. Where applicable Codes or Standards are not called by this standard or its requirements are not clear, it shall be brought to attention of Authorized Representative by Contractor for resolution.

Direct all requests for deviations or clarifications in writing to the Authorized Representative for final resolution. Technical changes implemented prior to approval by Authorized Representative are subject to rejection.

## 3.0 REFERENCE DOCUMENTS

- 080557C-000-JSD-1300-002 - Job Specification for Design - Piping Material Specifications
- PDRP4200-8550-SP-1013 - Instrument / Piping Interface Standard

## 4.0 HOOK-UPS ARRANGEMENT



### 4.1 PROCESS VENTS AND DRAINS

All process vents and drains shall be fitted with an appropriate valve selected from the pipe class valve list in which it placed. The vent and drain shall be recorded on the relevant P&ID's as per process requirement. The valve outlet shall be fitted with either a flange or cap as appropriate to the valve design.

### 4.2 HYDROSTATIC VENTS AND DRAINS

All low points in the piping system may require additional drain connections to drain the test fluid which shall be fitted with an appropriate valve selected from the respective pipe class. The valve outlet shall be fitted with either a flange or plug as appropriate to the valve design.

All hydrostatic vents would normally be without valves and shall be fitted with a closure appropriate to vent size and pressure class. The closure would normally be a flange, plug or

 <b>TechnipFMC</b>		<b>PROJECT</b>	<b>Standby SRU &amp; Additional Tanks</b> <b>IOCL Paradip Refinery</b>		
		<b>CLIENT</b>	<b>INDIAN OIL CORPORATION LIMITED</b>		
<b>PIPING STANDARDS – HOOKUP ASSEMBLY DRAWINGS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-088-STD-1380-001		<b>Rev. No.</b> A	Page 4 of 52

threaded cap. However there may be cases where high point vent require valved process vent which shall be employed as per process vent hook up.

The location of all hydrostatic vents and drains is dependent upon the geometry of the pipe run in order to locate suitable high and low points. High and low points can only realistically be identified on isometric drawings and these drawings will form part of detailed engineering design.

#### 4.3 HOOK-UPS ON PIPING

Applicable Piping Hook-up assemblies for individual pipe class are listed in Table-2.

The connection sizes & block valve sizes are based on the Instrument-Piping Interface standard as referred in section 3, and as per the requirement of Instrument. The sizes indicated on the table shall be updated suitably if any change from Instrument/as per requirement of Instrument discipline / Instrumentation design basis.

The assembly details P33, P34, F13 & F14 shall be referred for diaphragm mounting type instrument connections wherever shown on P&ID.

#### 4.4 HOOK-UPS ON EQUIPMENTS

Equipment Hook-up assembly details for individual pipe class are listed in Table-1.

The connection sizes & block valve sizes are based on the Instrument-Piping Interface standard as referred in section 3, and as per the requirement of Instrument. The sizes indicated on the table shall be updated suitably if any change from Instrument/as per requirement of Instrument discipline / Instrumentation design basis.



The assembly details PE07, LC07 & LC17 shall be referred for diaphragm mounting type instrument connections wherever shown on P&ID.



**TABLE-1: HOOK-UP ASSEMBLY DETAILS ON EQUIPMENTS**

PIPE CLASS	EQUIV. REFINERY PIPE CLASS (REFERENCE)	PI on Eqpt.	Plate glass type Level gauge		Level Transmitter / Level Control & Magnetic type Level gauge		Level D/P cell	
			on Eqpt.	on Stand pipe	on Eqpt.	on Stand pipe	on Eqpt.	on Stand pipe
		PE0	LA0	LA	LB0	LB0	LC0	LC
A1K	A0JV	1	1	11	1	2	1	11
A23A	A1AA	1	1	11	1	2	1	11
A1A	A1AP	1	1	11	1	2	1	11
A2A	A1AS	1	1	11	1	2	1	11
A21N	A1LV	1	1	11	1	2	1	11
A52A	A2AD	5	5	15	1	2	5	15
A8A	A2AL	2	2	12	1	2	2	12
A13A	A2AQ	4	4	14	1	2	4	14
A15A	A2AF	N/A						
A12A	A2AP	1	1	11	1	2	1	11
A28A	A2AR	4	4	14	1	2	4	14
A31A	A2AS	1	1	11	1	2	1	11
A29A	A2AU	1	1	11	1	2	1	11
A3A	A2AW	1	1	11	1	2	1	11
A30A	A2UU, A2UW	N/A						
A49A	A4AR	4	4	14	1	2	4	14
A95A	A4AV	3	3	13	1	2	3	13
A17A	A4UV	N/A						
B19A	B1AL	2	2	12	1	2	2	12
B1A	B1AP	1	1	11	1	2	1	11
B2A	B1AS	1	1	11	1	2	1	11
B9A	B2AP	1	1	11	1	2	1	11
B28A	B2AR	4	4	14	1	2	4	14
B31A	B2AS	1	1	11	1	2	1	11
B49A	B4AR	4	4	14	1	2	4	14
D9D	D1DS	HOLD						
D9L	D1ZS	HOLD						
D3A	D2A2	HOLD						
D2A	D1AS	HOLD						
D31A	D2AS	HOLD						
A53G	S0RA,S1RW	N/A						

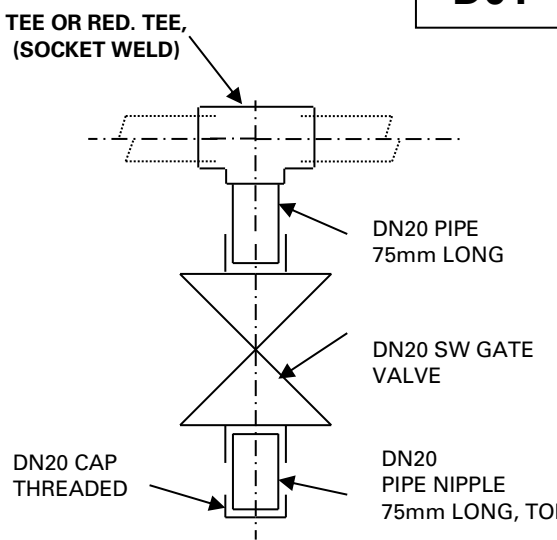
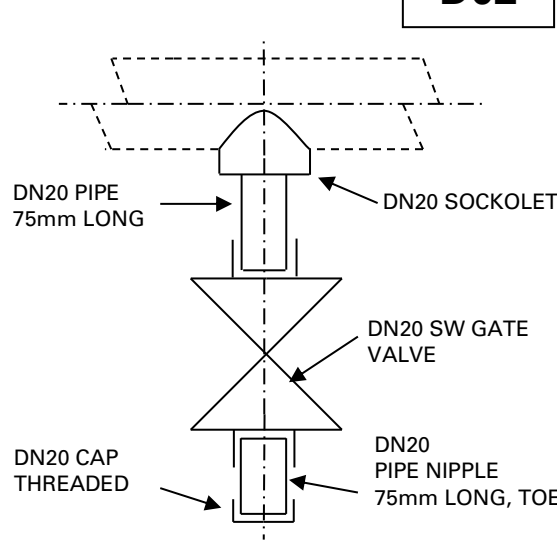
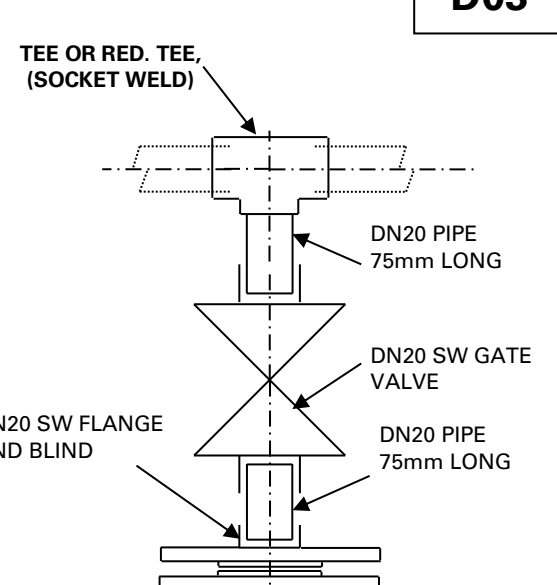
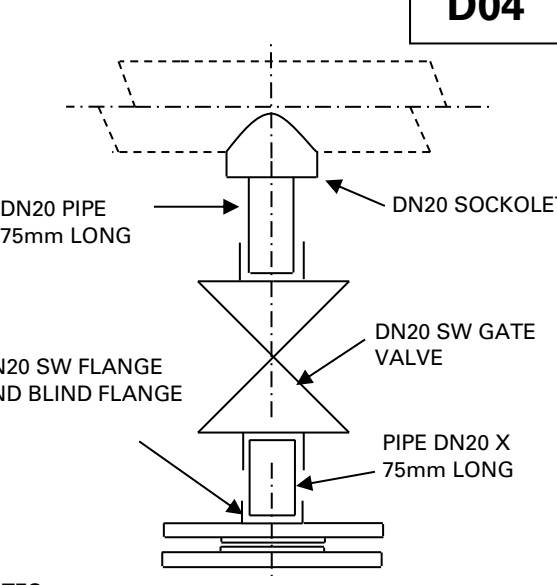


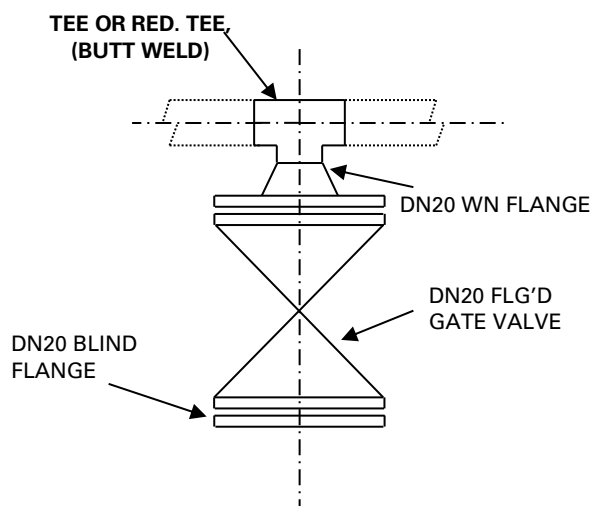
 	<b>PROJECT</b>		<b>Standby SRU &amp; Additional Tanks</b>		
	<b>CLIENT</b>		<b>IOCL Paradip Refinery</b>		
<b>PIPING STANDARDS – HOOKUP ASSEMBLY DRAWINGS</b>	<b>Project No.</b> 080557C001	<b>Document No.</b> 080557C-088-STD-1380-001		<b>Rev. No.</b> A	Page 6 of 52

**TABLE-2: STANDARD PIPING ASSEMBLIES**

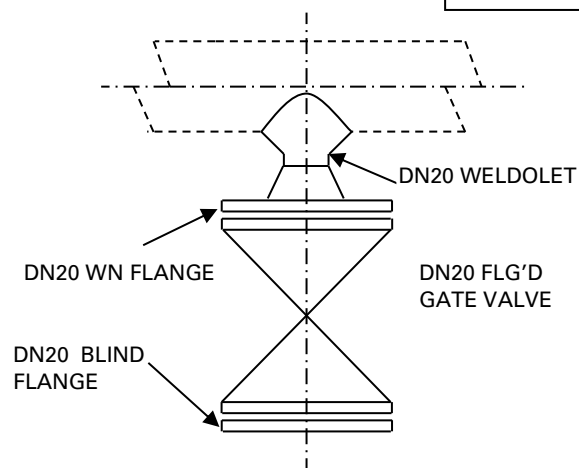
<b>VENTS, DRAINS AND INSTRUMENT CONNECTIONS</b> (REFER FOLLOWING PAGES FOR PIPING STANDARD HOOK-UPS)										
PIPING CLASS	PIPING CLASS (EQUIVALENT EXISTING REFINERY CLASS)	20 – 40 (MM)	50 & ABOVE (MM)	20 – 40 (MM)	50 & ABOVE (MM)	20 – 40 (MM)	50 & ABOVE (MM)	80 MM	100 & ABOVE (MM)	
		VENT / DRAIN VALVED		VENT HYDROSTATIC		PRESSURE CONNECTION		TEMPERATURE CONNECTION		ORIFICE
A1K	A0JV	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
A23A	A1AA	D01/V01	D02/V02	H01	H02	P01	P02	T01	T02	F01
A1A	A1AP	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
A2A	A1AS	D01/V01	D02/V02	H09	H10	P01	P02	T03	T04	F01
A21N	A1LV	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
A52A	A2AD	D09/V09	D10/V10	H03	H04	P05	P06	T01	T02	F03
A13A	A2AQ	D07/V07	D08/V08	H07	H08	P03	P04	T03	T04	F09
A8A	A2AL	D11/V11	D12/V12	H03	H04	P07	P08	T01	T02	F05
A15A	A2AF	Refer Job Specification for Steam Tracing & Jacketing (080557C-000-JSD-1300-006)								
A12A	A2AP	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
A28A	A2AR	D07/V07	D08/V08	H07	H08	P03	P04	T03	T04	F09
A31A	A2AS	D01/V01	D02/V02	H09	H10	P01	P02	T03	T04	F01
A29A	A2AU	D01	D02	H03	H04	P01	P02	T01	T02	F01
A3A	A2AW	D01/V01	D02/V02	H01	H02	P01	P02	T01	T02	F01
A30A	A2UU, A2UW	Not Applicable (UG)								
A49A	A4AR	D07/V07	D08/V08	H07	H08	P03	P04	T03	T04	F09
A95A	A4AV	D07/V07	D08/V08	H07	H08	P25	P26	T03	T04	F08
A17A	A4UV	Not Applicable (UG)								
B19A	B1AL	D11/V11	D12/V12	H03	H04	P07	P08	T01	T02	F05
B1A	B1AP	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
B2A	B1AS	D01/V01	D02/V02	H09	H10	P01	P02	T03	T04	F01
B9A	B2AP	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
B28A	B2AR	D07/V07	D08/V08	H07	H08	P03	P04	T03	T04	F09
B31A	B2AS	D01/V01	D02/V02	H09	H10	P01	P02	T03	T04	F01
B49A	B4AR	D07/V07	D08/V08	H07	H08	P03	P04	T03	T04	F09
D2A	D1AS	D33/V29	D34/V30	H09	H10	P27	P28	T03	T04	F10
D3A	D2A2	D01/V01	D02/V02	H03	H04	P01	P02	T01	T02	F01
D31A	D2AS	D33/V29	D34/V30	H09	H10	P27	P28	T03	T04	F10
D9D	D1DS	D35/V31	D36/V32	H09	H10	P29	P30	T03	T04	F11
D9L	D1ZS	D31/V27	D32/V28	H07	H08	P31	P32	T03	T04	F12
A53G	S0RA, S1RW	D17/V17	D18/V18	H05	H06	P13	P14	T07	T08	F04

## HOOKUP ASSEMBLY DETAILS ON PIPING

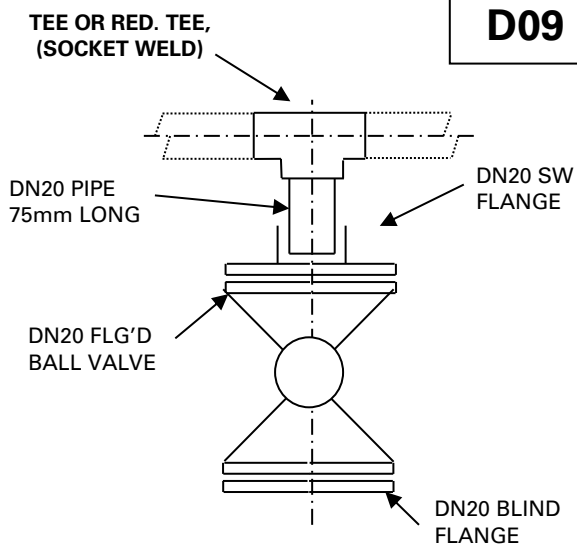
<div data-bbox="655 488 809 564" data-label="Caption"> <b>D01</b> </div>  <p>NOTE: DN20 PIPE 75mm LONG</p> <p>NOTE: DN20 SW GATE VALVE</p> <p>NOTE: DN20 CAP THREADED</p> <p>NOTE: DN20 PIPE NIPPLE 75mm LONG, TOE</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>FOR RUN SIZE DN20 – DN40 ONLY.</li> <li>FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.</li> </ol>	<div data-bbox="1281 488 1434 564" data-label="Caption"> <b>D02</b> </div>  <p>NOTE: DN20 PIPE 75mm LONG</p> <p>NOTE: DN20 SOCKOLET</p> <p>NOTE: DN20 SW GATE VALVE</p> <p>NOTE: DN20 CAP THREADED</p> <p>NOTE: DN20 PIPE NIPPLE 75mm LONG, TOE</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>FOR RUN SIZE DN50 – DN600 ONLY.</li> <li>FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.</li> <li>USE DN25 DRAIN ASSEMBLY FOR RUN SIZES FROM DN650 – DN1200. USE DN40 DRAIN ASSEMBLY FOR RUN SIZES ABOVE DN1200.</li> </ol>
<div data-bbox="655 1276 809 1352" data-label="Caption"> <b>D03</b> </div>  <p>NOTE: TEE OR RED. TEE, (SOCKET WELD)</p> <p>NOTE: DN20 PIPE 75mm LONG</p> <p>NOTE: DN20 SW GATE VALVE</p> <p>NOTE: DN20 SW FLANGE AND BLIND</p> <p>NOTE: DN20 PIPE 75mm LONG</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>FOR RUN SIZE DN20 - DN40 ONLY.</li> <li>FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.</li> </ol>	<div data-bbox="1281 1276 1434 1352" data-label="Caption"> <b>D04</b> </div>  <p>NOTE: DN20 PIPE 75mm LONG</p> <p>NOTE: DN20 SOCKOLET</p> <p>NOTE: DN20 SW GATE VALVE</p> <p>NOTE: DN20 SW FLANGE AND BLIND FLANGE</p> <p>NOTE: PIPE DN20 X 75mm LONG</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>FOR RUN SIZE DN50 – DN600 ONLY.</li> <li>FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.</li> <li>FOR RUN SIZE DN650 TO DN1200 USE DN25 DRAIN ASSEMBLY.</li> </ol>

**D07**

**NOTES:**

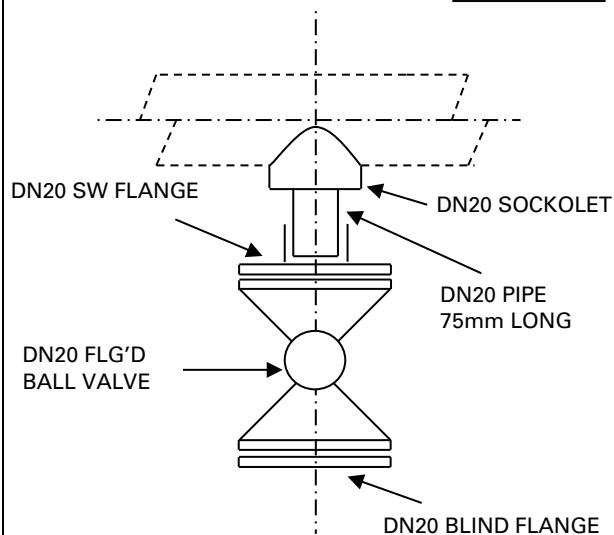
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.

**D08**

**NOTES:**

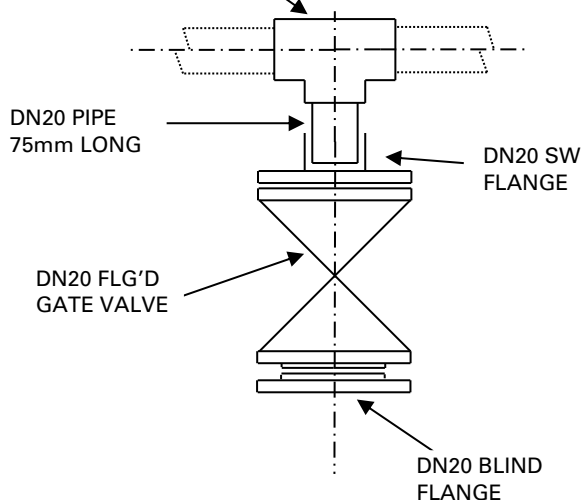
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR RUN SIZES DN650-DN1200 USE DN25 DRAIN ASSEMBLY. USE DN40 DRAIN ASSEMBLY FOR RUN SIZES OVER DN1200

**D09**

**NOTES:**

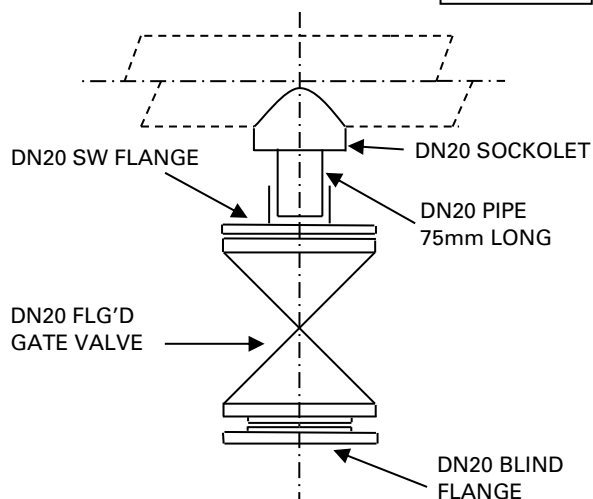
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**D10**

**NOTES:**

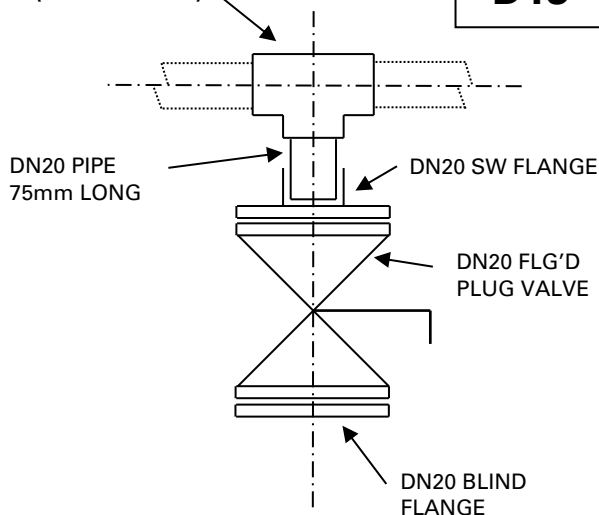
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

**TEE OR RED. TEE,  
(SOCKET WELD)**
**D11**

**NOTES:**

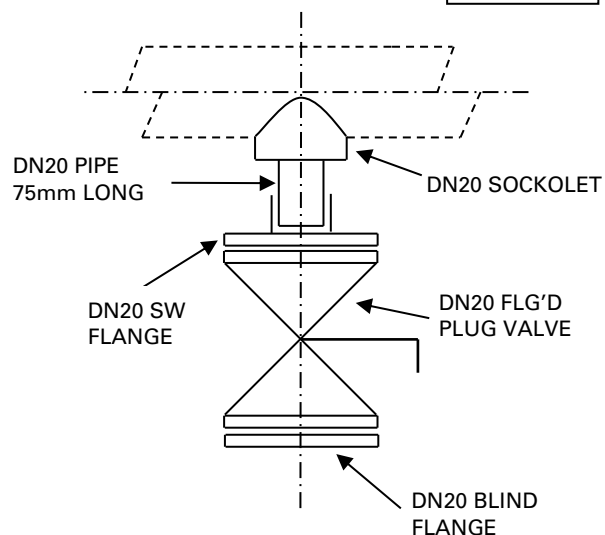
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**D12**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 TO DN1200 USE DN25 DRAIN ASSEMBLY. USE DN40 DRAIN ASSEMBLY FOR RUN SIZE ABOVE DN1200

**TEE OR RED. TEE,  
(SOCKET WELD)**
**D13**

**NOTES:**

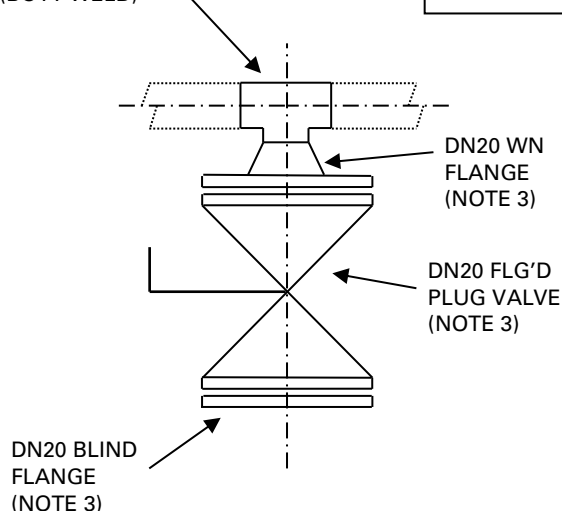
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**D14**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

TEE OR RED. TEE,  
(BUTT WELD)

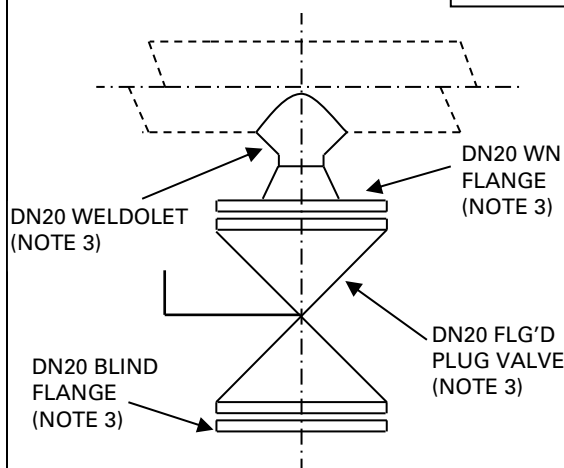
**D15**



**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR PTFE LINED PLUG VALVES, MINIMUM DRAIN ASSEMBLY SIZE IS DN25.

**D16**

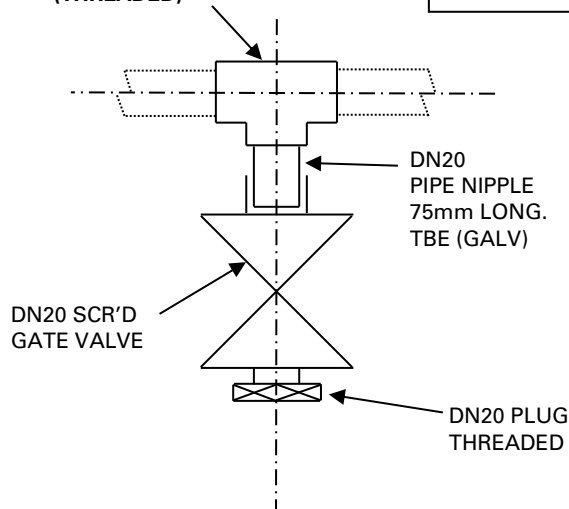


**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR PTFE LINED PLUG VALVES MINIMUM DRAIN ASSEMBLY SIZE IS DN25.
4. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

TEE OR RED. TEE,  
(THREADED)

**D17**

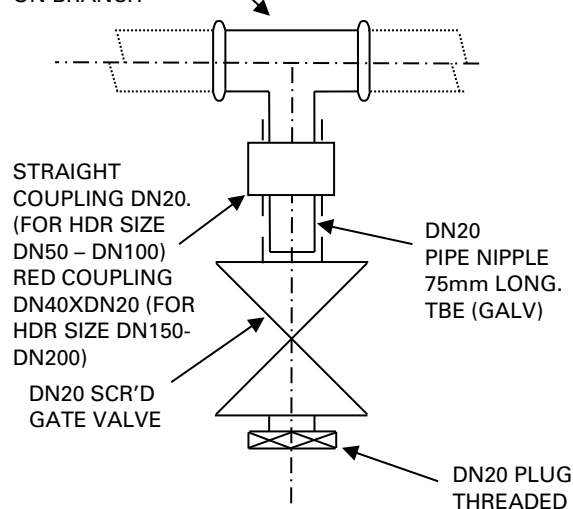


**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. PIPE NIPPLE LENGTH MAY BE INCREASED IF NECESSARY.

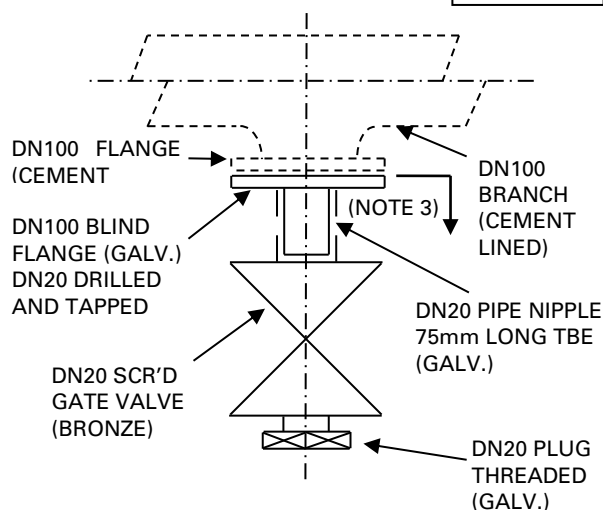
RED. TEE, GROOVED ENDS  
ON RUN THRD. NPT(M) END  
ON BRANCH

**D18**

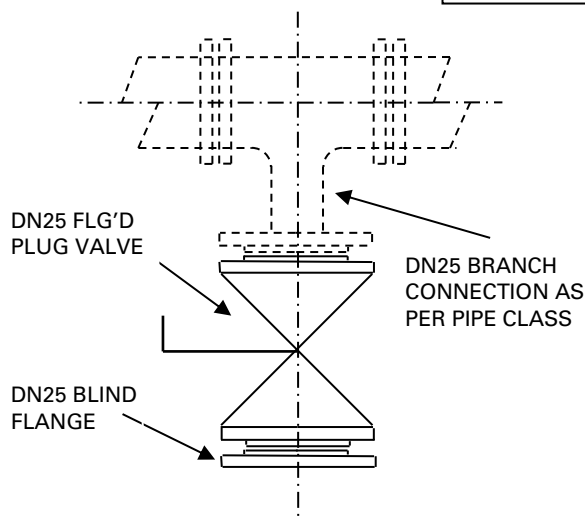


**NOTES:**

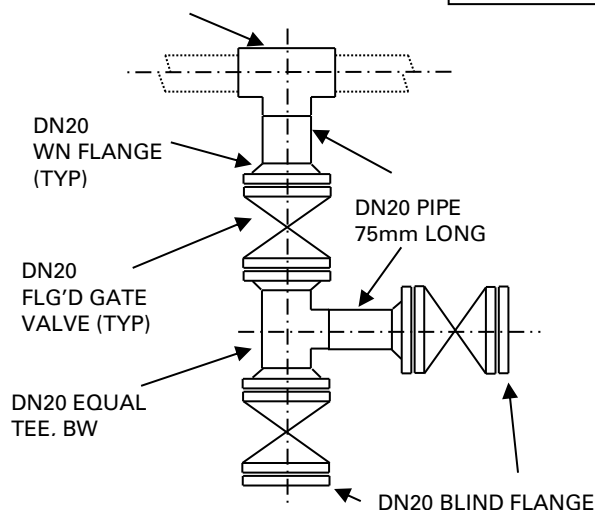
1. FOR RUN SIZE DN50 – DN200 ONLY.

**D19**

**NOTES:**

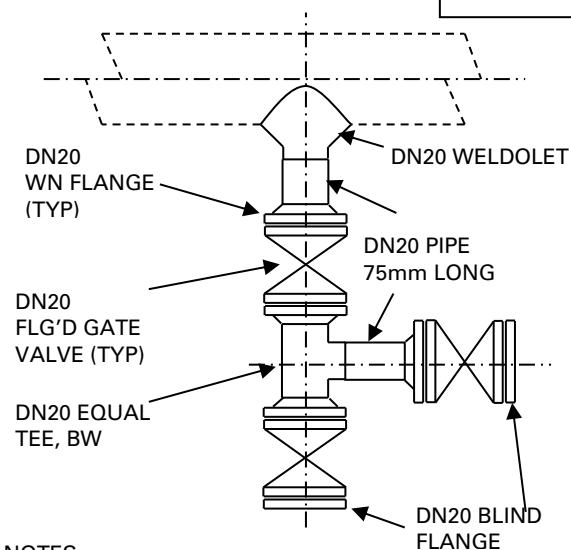
1. FOR RUN SIZE DN100 – DN600 ONLY.
2. FOR RUN SIZE DN650 - DN1200 USE DN25 DRAIN ASSEMBLY. USE DN40 DRAIN ASSEMBLY FOR RUN SIZES OVER DN1200.
3. USE PIPING ITEMS AS PER PIPE CLASS S1RW.

**D20**

**NOTES:**

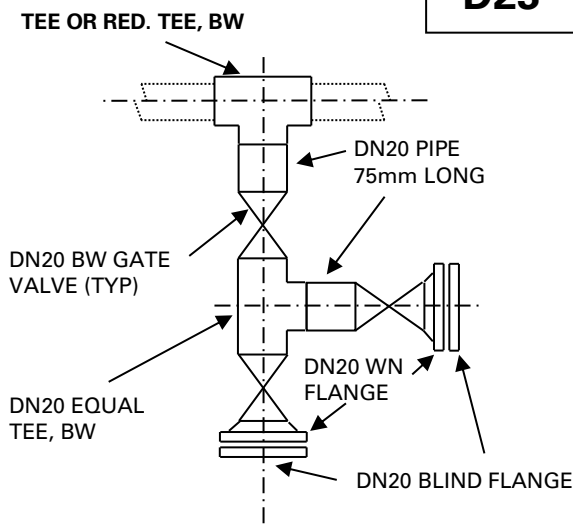
1. FOR RUN SIZE DN25 & ABOVE.
2. FOR INSULATED LINES FLANGED SPOOLS OR SPACERS MAY BE ADDED IF REQUIRED.

**TEE OR RED. TEE, BW**
**D21**

**NOTES:**

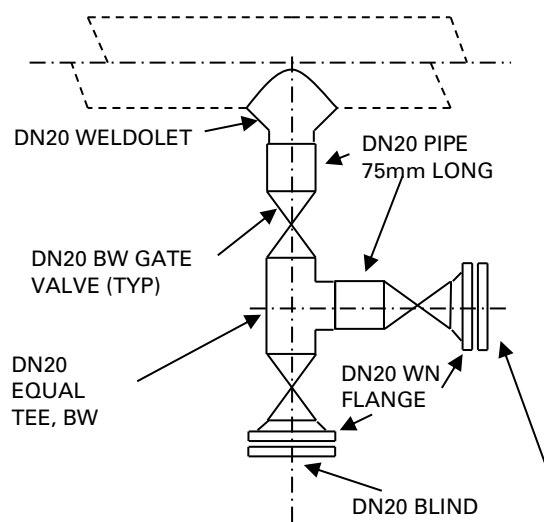
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED PIPE LENGTH MAY NEED TO BE INCREASED.

**D22**

**NOTES:**

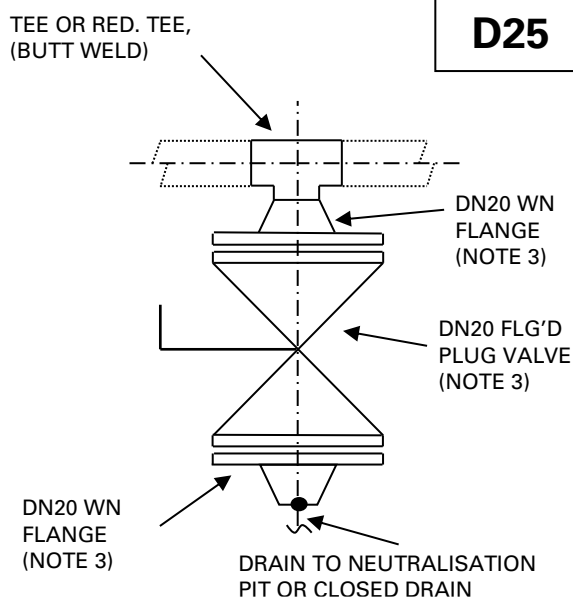
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 - DN1200 USE DN25 DRAIN ASSEMBLY.

**D23**

**NOTES:**

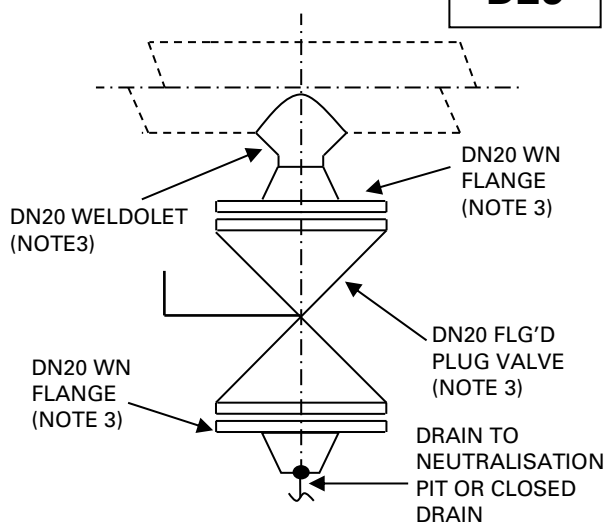
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED PIPE LENGTH MAY NEED TO BE INCREASED.

**D24**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

**D25**

**NOTES:**

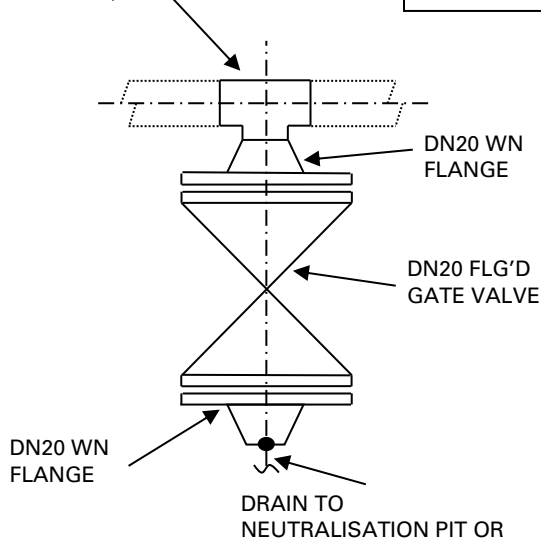
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR PTFE LINED PLUG VALVE, MINIMUM DRAIN ASSEMBLY SIZE IS DN25.

**D26**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR PTFE LINED PLUG VALVE, MINIMUM DRAIN ASSEMBLY SIZE IS DN25.
4. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

TEE OR RED. TEE,  
(BUTT WELD)

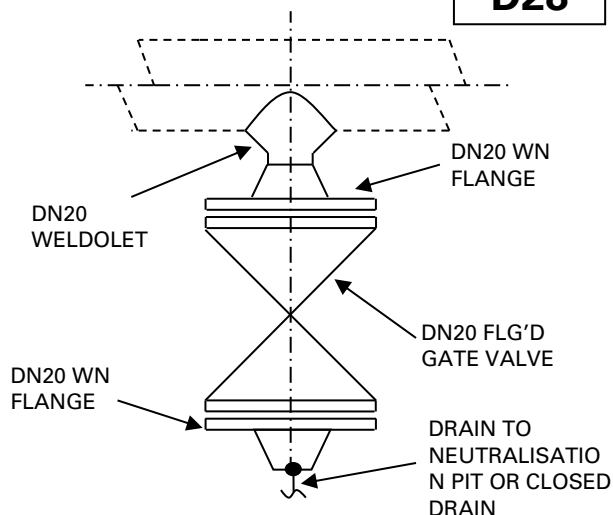
**D27**



**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.

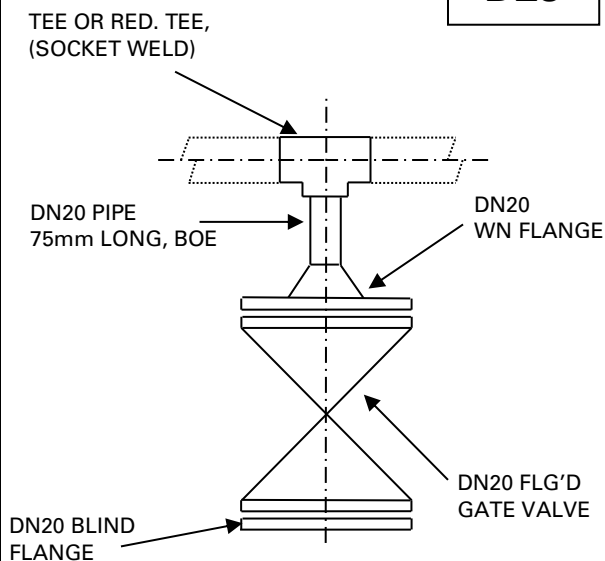
**D28**



**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

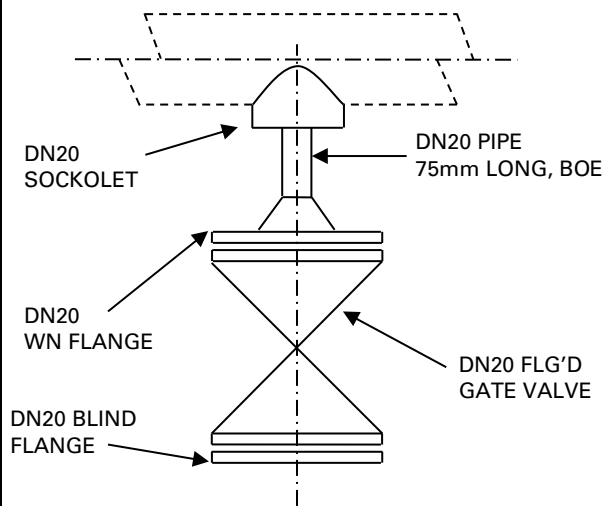
**D29**



**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

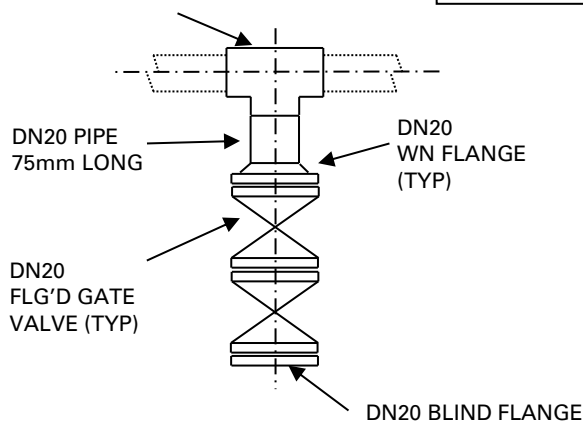
**D30**



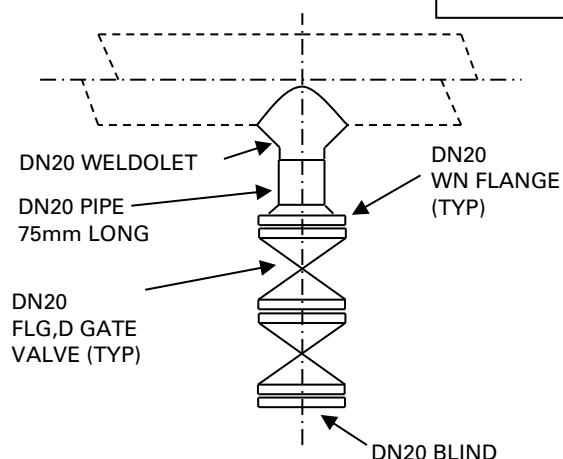
**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZES DN650 - DN1200 USE DN25 DRAIN ASSEMBLY.

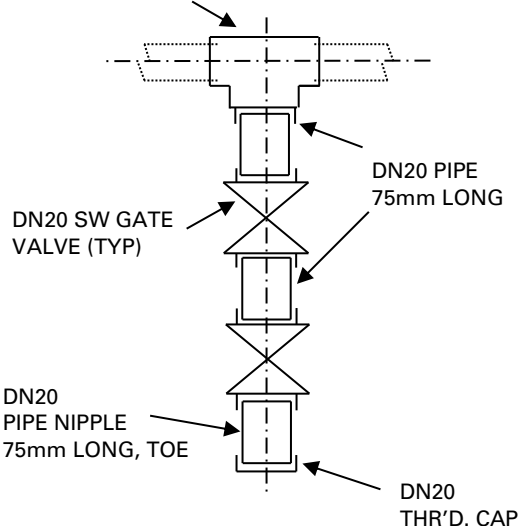


**TEE OR RED. TEE, BW**
**D31**

**NOTES:**

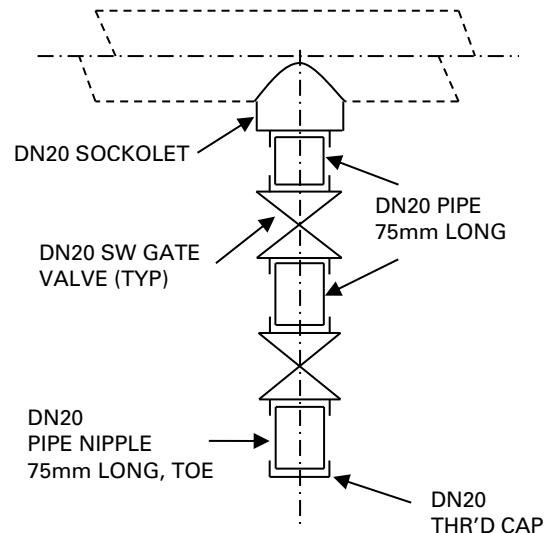
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**D32**

**NOTES:**

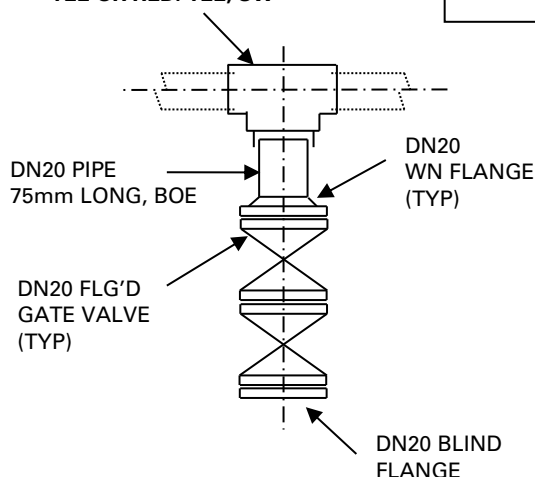
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 - DN1200 USE DN25 DRAIN ASSEMBLY.

**TEE OR RED. TEE, SW**
**D33**

**NOTES:**

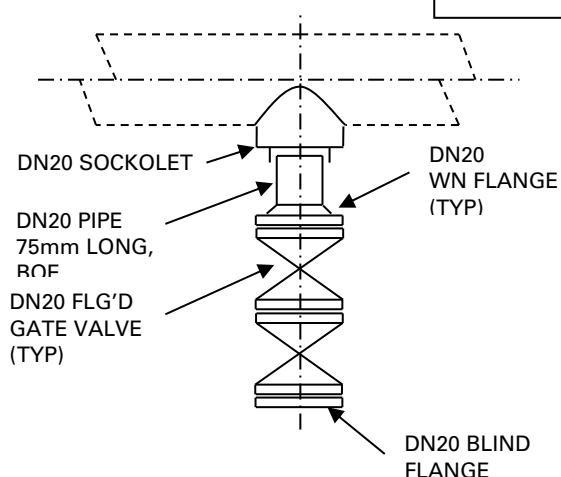
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**D34**

**NOTES:**

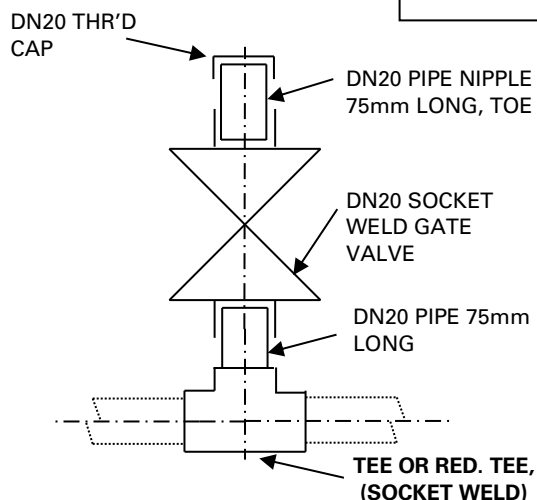
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 DRAIN ASSEMBLY.

**TEE OR RED. TEE, SW**
**D35**

**NOTES:**

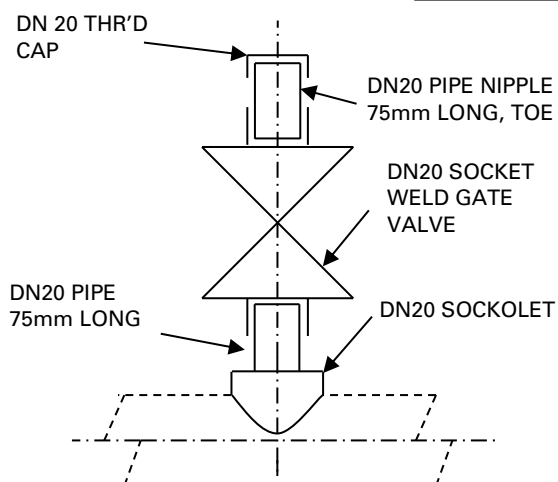
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**D36**

**NOTES:**

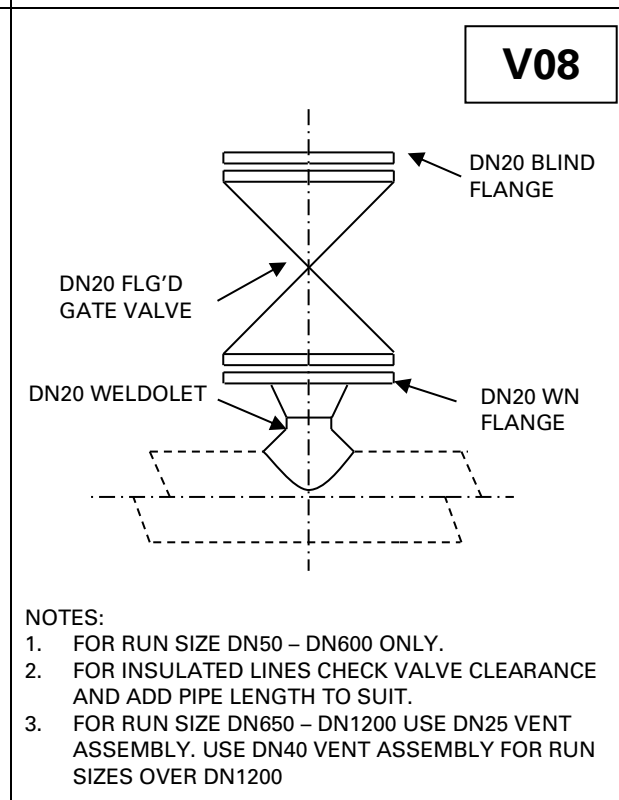
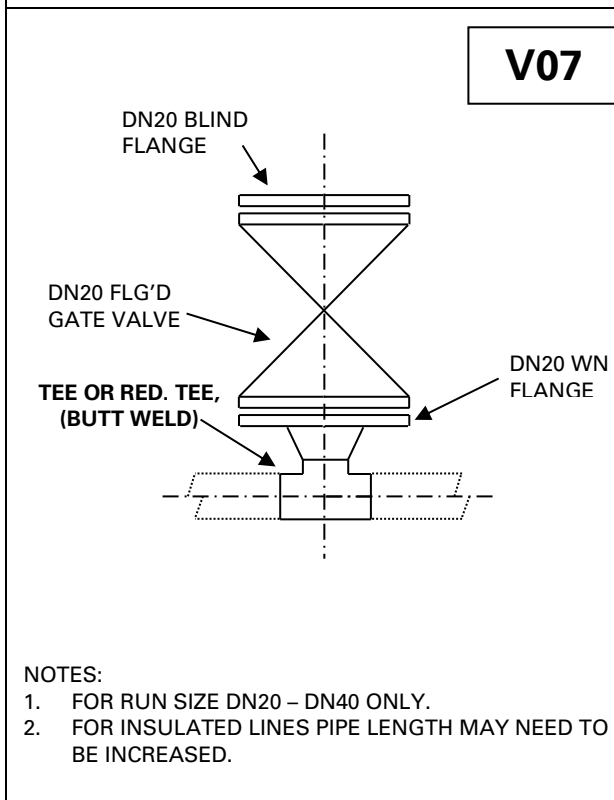
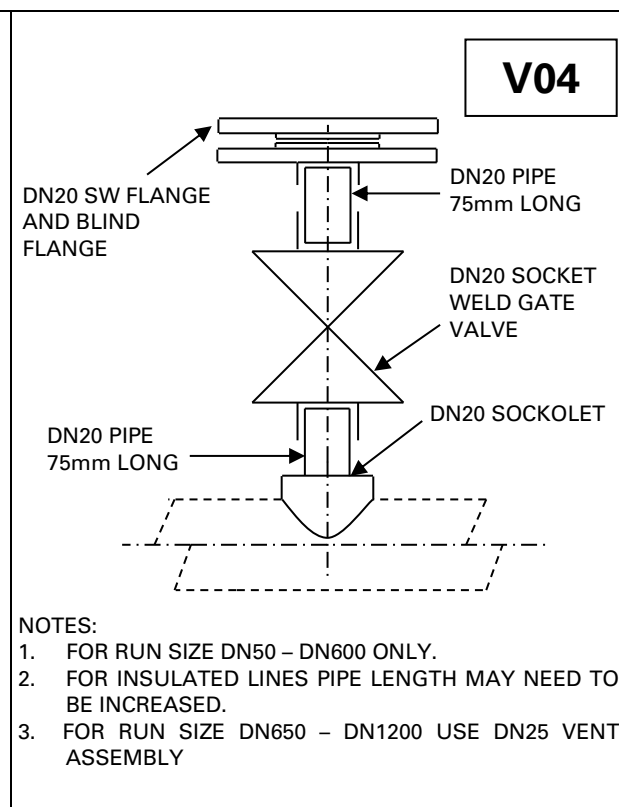
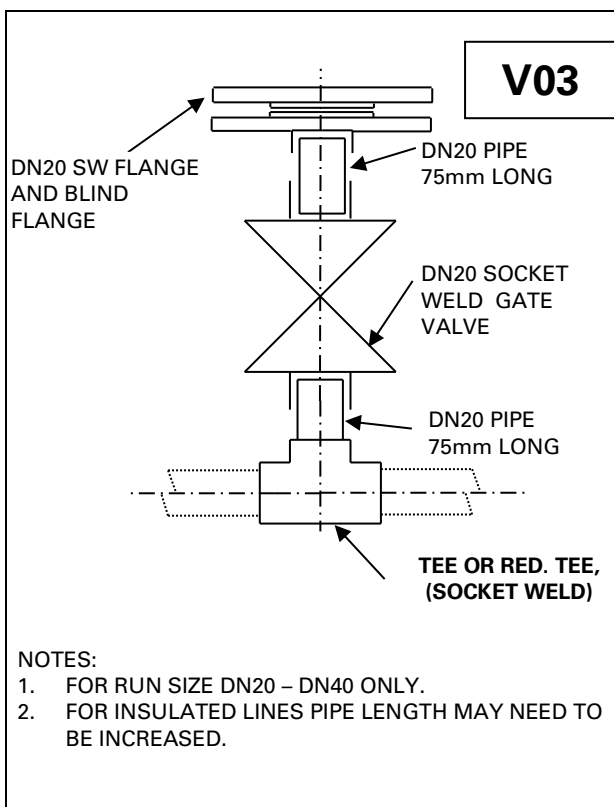
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 - DN1200 USE DN25 DRAIN ASSEMBLY.

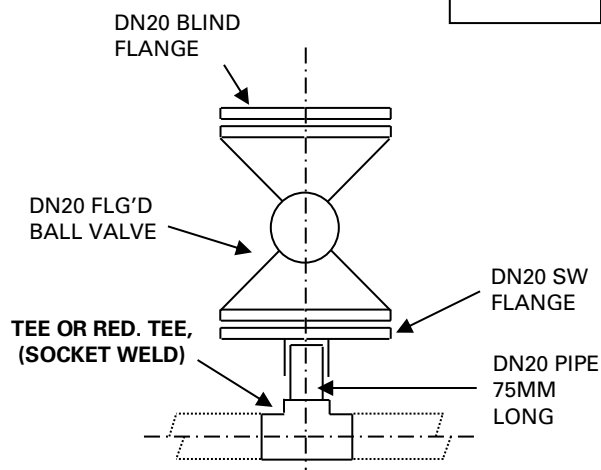
**V01**

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

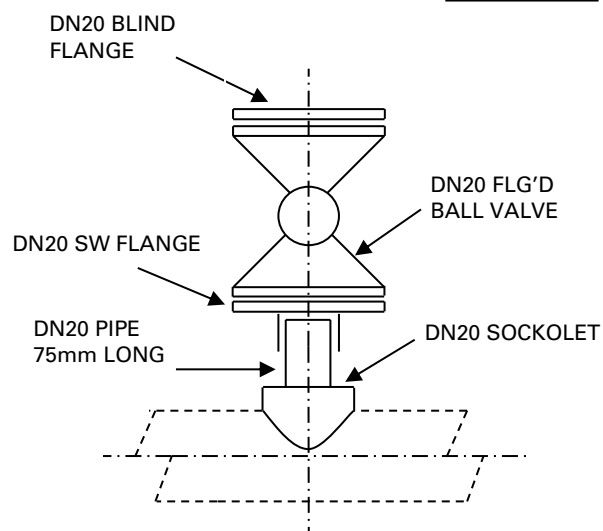
**V02**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY. USE DN40 VENT ASSEMBLY FOR RUN SIZE ABOVE DN1200

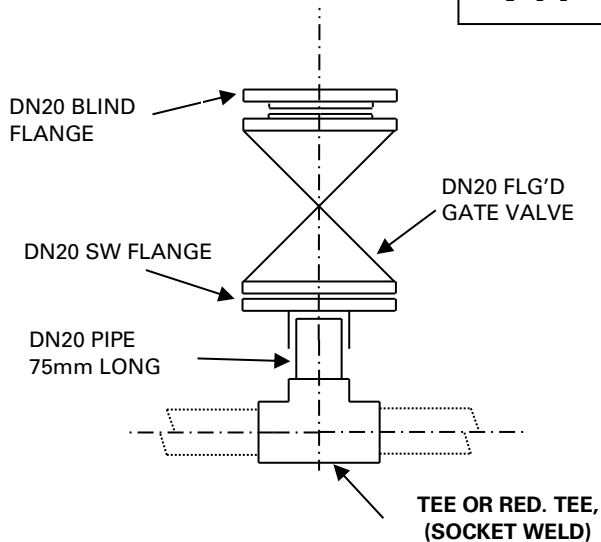


**V09**

**NOTES:**

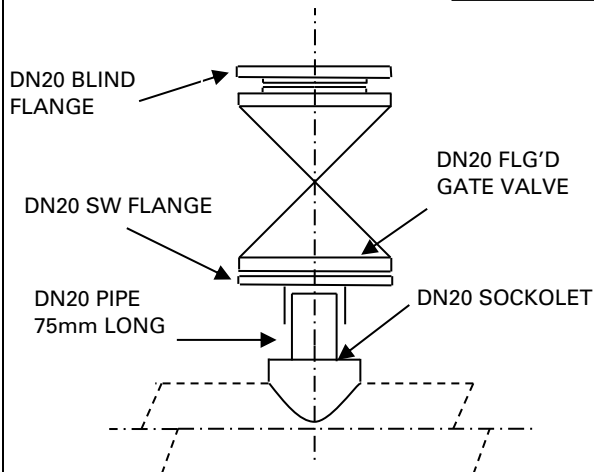
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V10**

**NOTES:**

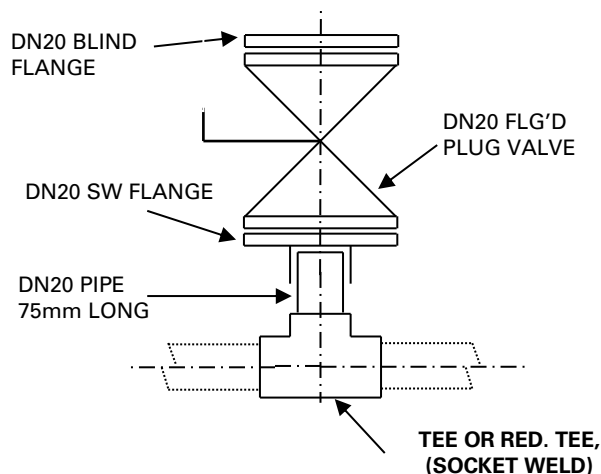
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY

**V11**

**NOTES:**

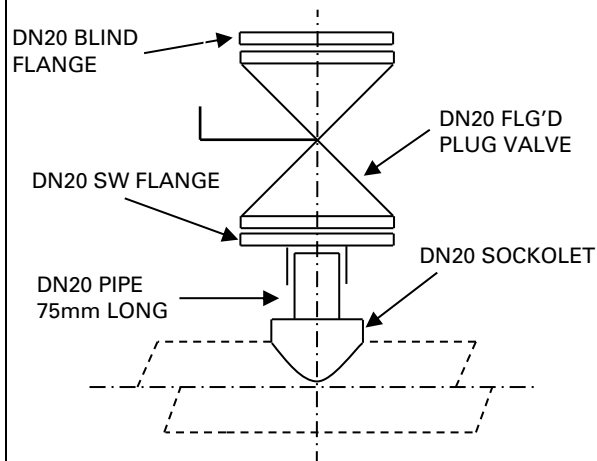
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V12**


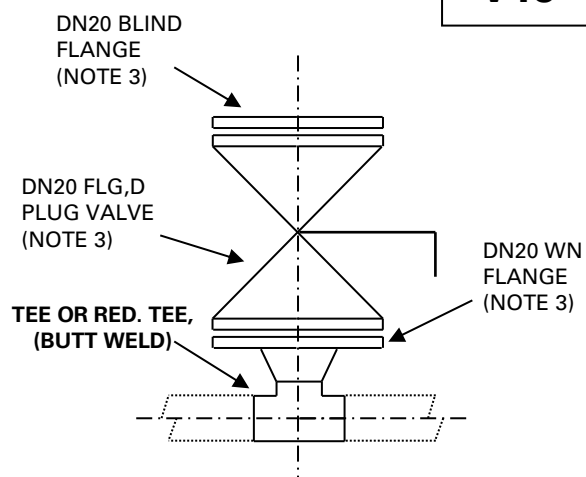
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR SIZES DN650 – DN1200 USE DN25 VENT ASSEMBLY. USE DN40 VENT ASSEMBLY FOR RUN SIZES ABOVE DN1200.

**V13**

**NOTES:**

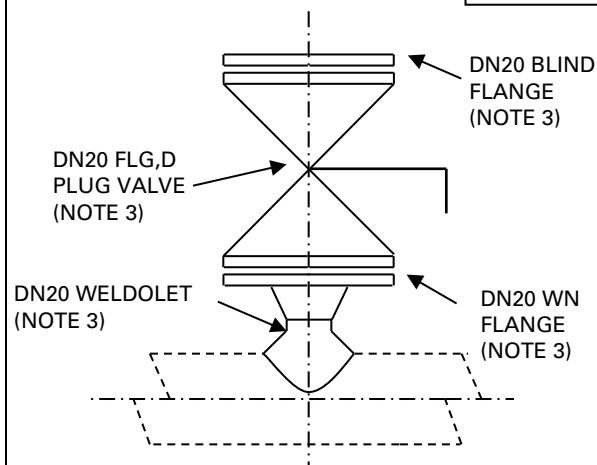
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V14**

**NOTES:**

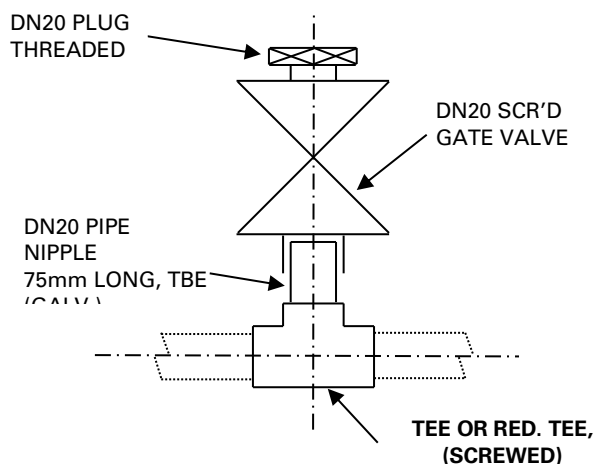
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY.

**V15**

**NOTES:**

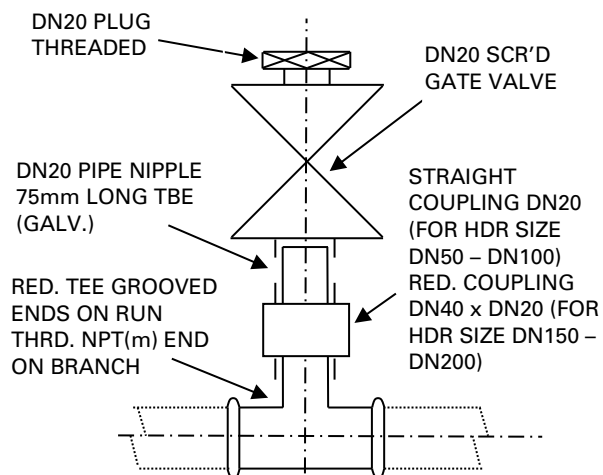
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR PTFE LINED PLUG VALVE, MINIMUM VENT ASSEMBLY SIZE IS DN25

**V16**

**NOTES:**

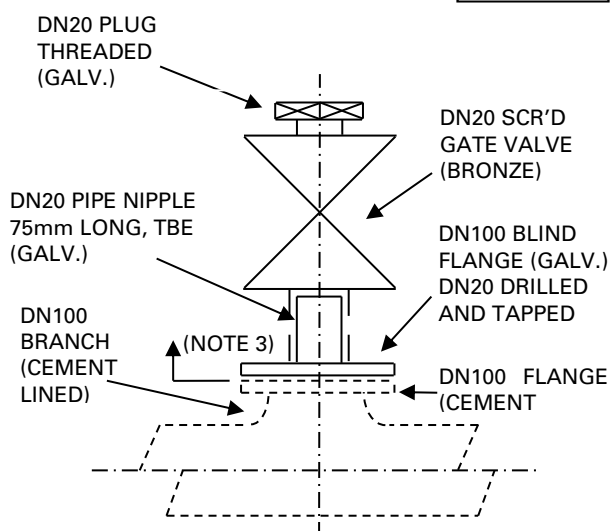
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR PTFE LINED PLUG VALVE, MINIMUM VENT ASSEMBLY SIZE IS DN25.
4. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY.

**V17**

**NOTES:**

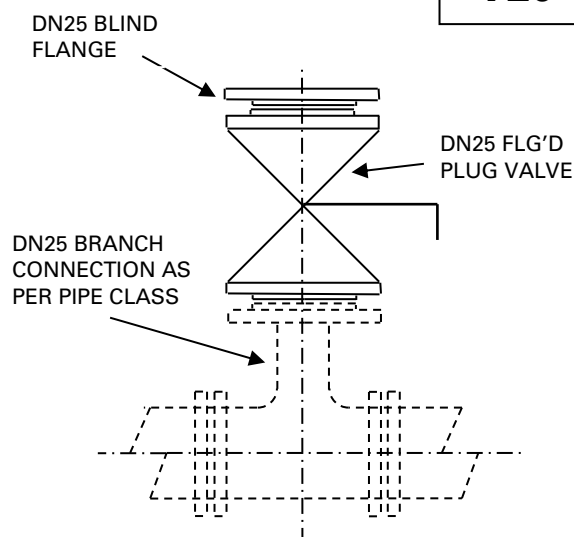
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. PIPE NIPPLE LENGTH MAY NEED TO BE INCREASED IF NECESSARY.

**V18**

**NOTES:**

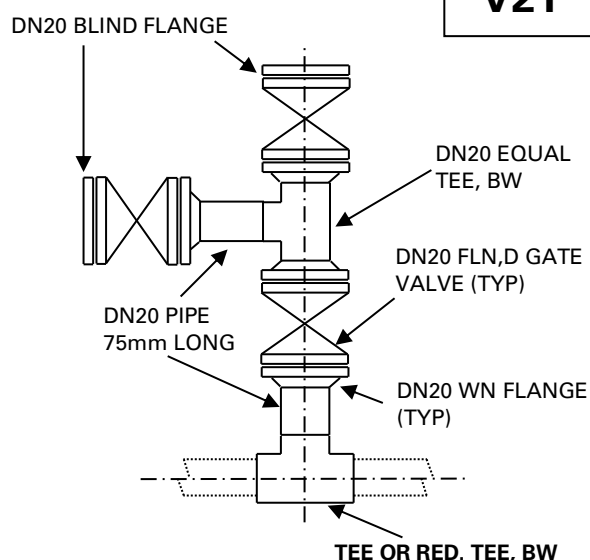
1. FOR RUN SIZE DN50 – DN200 ONLY.

**V19**

**NOTES:**

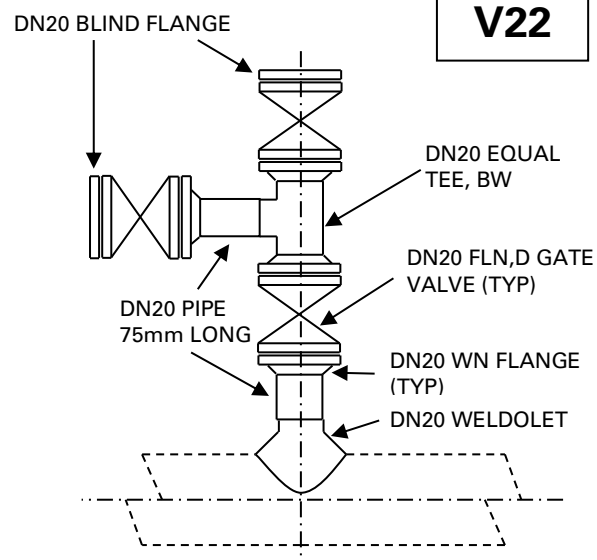
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY. USE DN40 VENT ASSEMBLY FOR RUN SIZES OVER DN1200.
3. USE PIPING ITEMS AS PER PIPE CLASS S1RW

**V20**

**NOTES:**

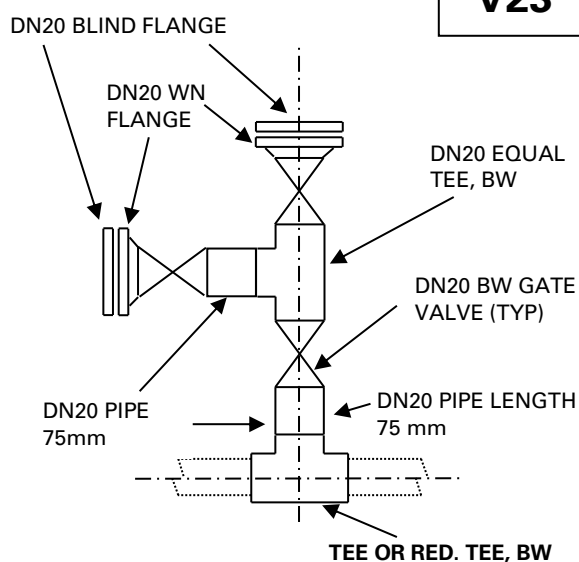
1. FOR RUN SIZE DN25 & ABOVE.
2. FOR INSULATED LINES FLANGED SPOOLS OR SPACERS MAY BE ADDED IF REQUIRED.

**V21**

**NOTES:**

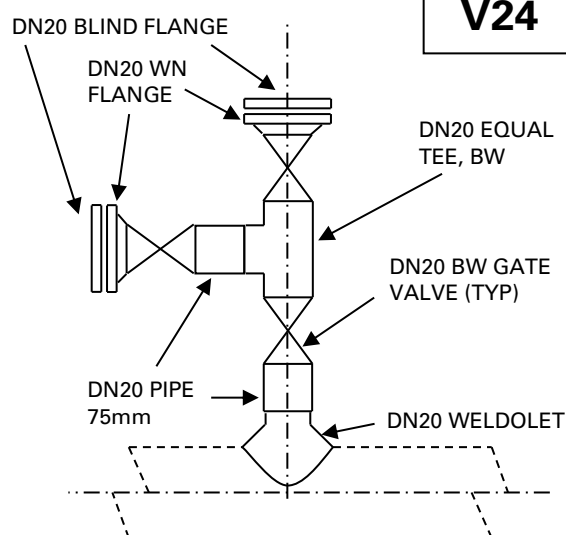
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V22**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY

**V23**

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V24**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY

DN20 BLIND  
FLANGE

DN20 FLG'D  
GATE VALVE

DN20 PIPE  
75MM LONG, BOE

**V25**

DN20 WN  
FLANGE

TEE OR RED. TEE,  
(SOCKET WELD)

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

DN20 BLIND  
FLANGE

DN20 FLG'D  
GATE VALVE

DN20 WN  
FLANGE

DN20 PIPE  
75MM LONG, BOE

**V26**

DN20 SOCKOLET

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY.

**V27**

DN20 BLIND FLANGE

DN20 PIPE  
75mm LONG

DN20 FLG'D GATE  
VALVE (TYP)

DN20 WN FLANGE  
(TYP)

TEE OR RED. TEE, BW

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE NIPPLE LENGTH MAY NEED TO BE INCREASED.

**V28**

DN20 BLIND FLANGE

DN20 PIPE  
75mm LONG

DN20 FLG'D GATE  
VALVE (TYP)

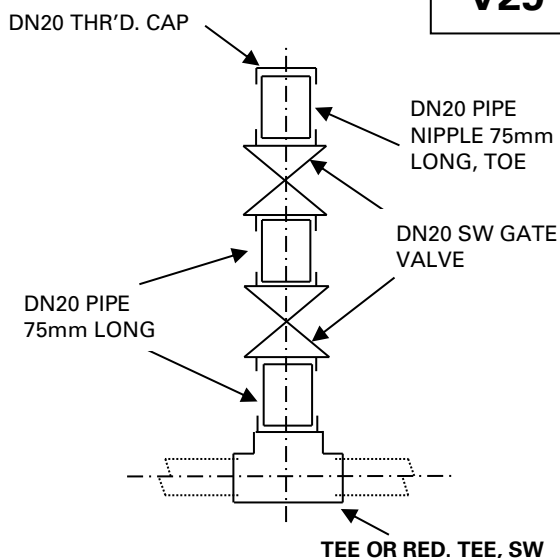
DN20 WELDOLET

DN20 WN  
FLANGE (TYP)

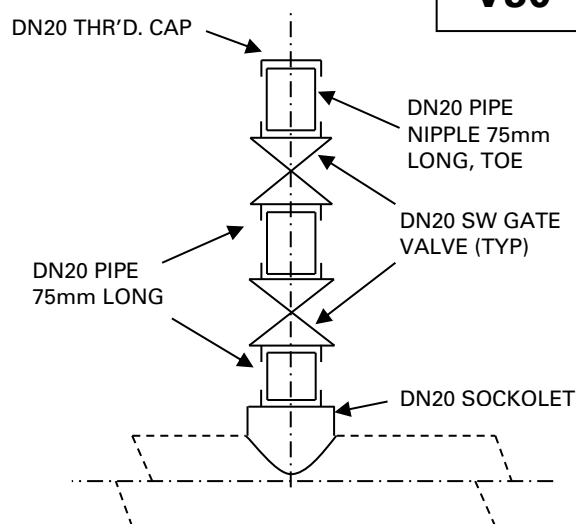
**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE NIPPLE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY

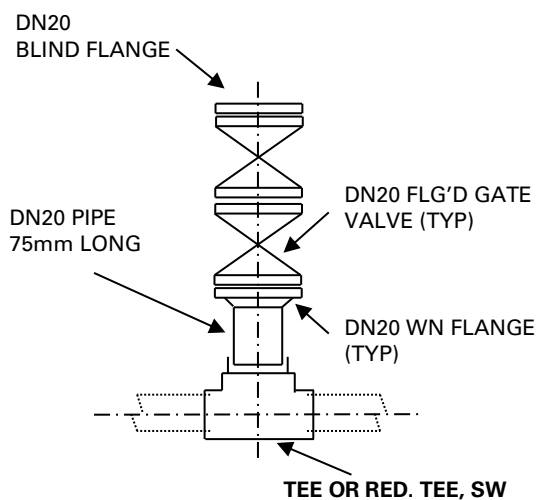


**V29**

**NOTES:**

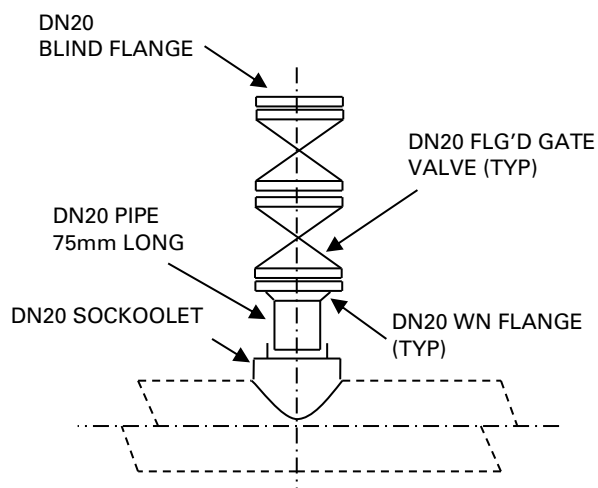
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V30**

**NOTES:**

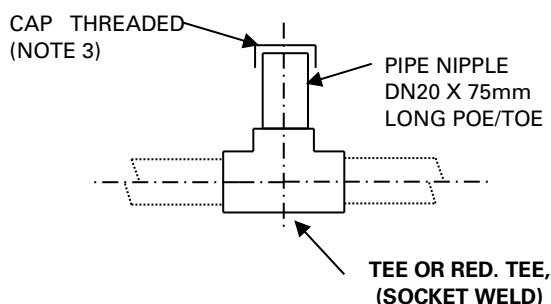
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY

**V31**

**NOTES:**

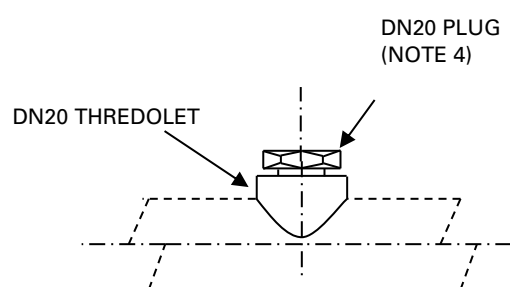
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**V32**

**NOTES:**

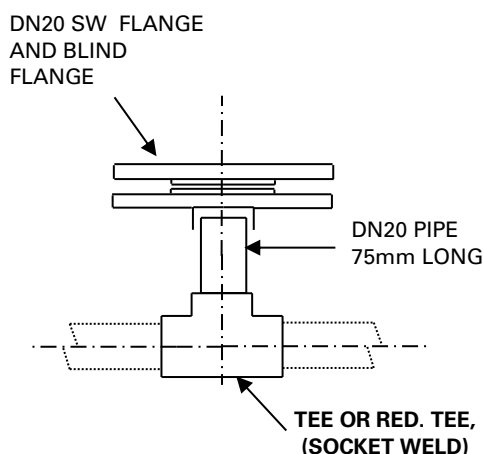
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE DN650 – DN1200 USE DN25 VENT ASSEMBLY

**H01**

**NOTES:**

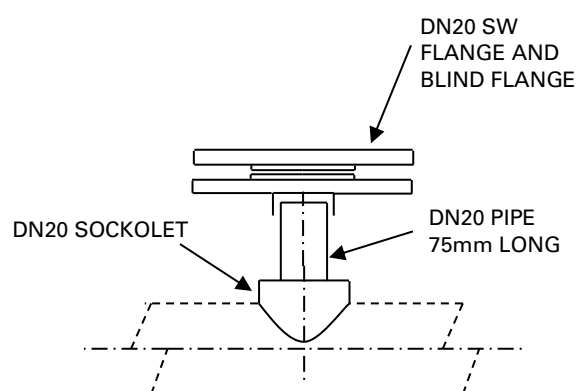
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE NIPPLE LENGTH MAY NEED TO BE INCREASED.
3. USE PTFE JOINTING TAPE OR APPROVED JOINTING COMPOUND.

**H02**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES USE PIPE NIPPLE AND CAP
3. FOR RUN SIZE OVER DN600 USE DN25 VENT ASSEMBLY.
4. USE PTFE JOINTING TAPE OR APPROVED JOINTING COMPOUND.

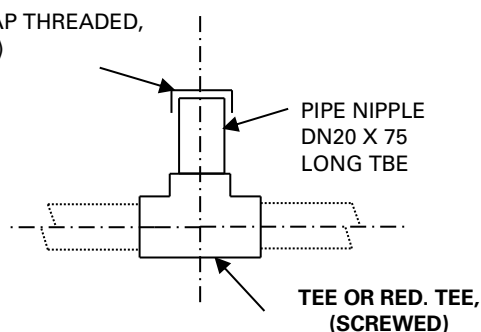
**H03**

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**H04**

**NOTES:**

1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE OVER DN600 USE DN25 VENT ASSEMBLY.

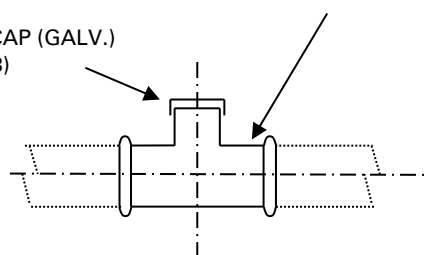
**H05**

DN20 CAP THREADED,  
(NOTE 3)

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE NIPPLE LENGTH MAY NEED TO BE INCREASED.
3. USE PTFE JOINTING TAPE OR APPROVED JOINTING COMPOUND.

**H06**

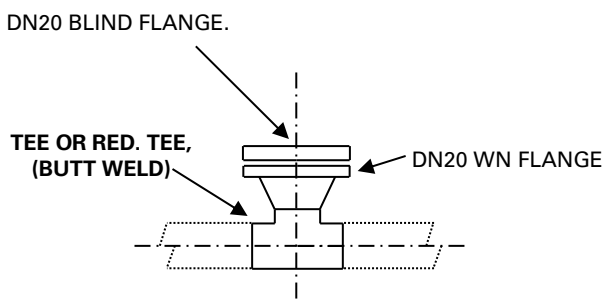
RED. TEE GROOVED ENDS ON RUN  
NPT (m) END ON BRANCH  
FOR RUN SIZE DN50 – DN100  
BRANCH SIZE IS DN20.  
FOR RUN SIZE DN150 – DN200  
BRANCH SIZE IS DN40

SCRD. CAP (GALV.)  
(NOTE 3)

**NOTES:**

1. FOR RUN SIZE DN50 – DN200 ONLY.
2. FOR INSULATED LINES USE PIPE NIPPLE AND CAP
3. USE PTFE JOINTING TAPE OR APPROVED JOINTING COMPOUND.

**H07**

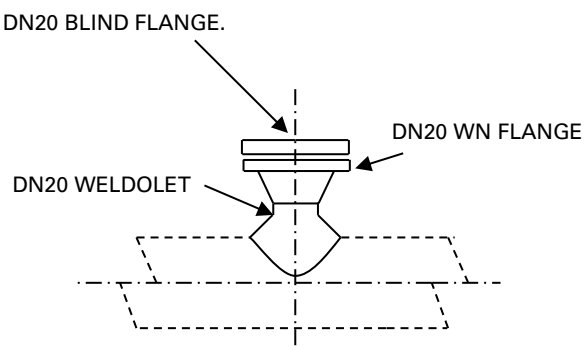
DN20 BLIND FLANGE.


**NOTES:**

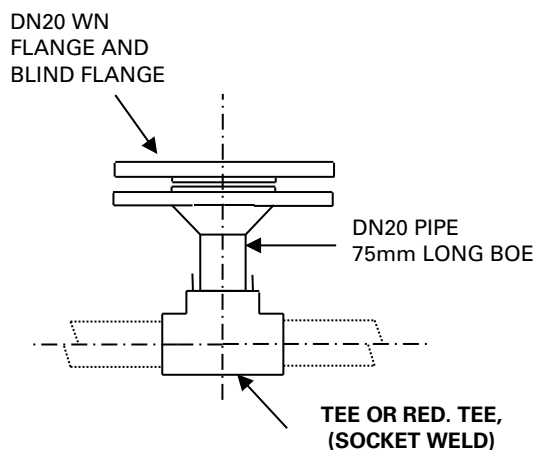
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES USE SUITABLE PIPE LENGTH BETWEEN TEE AND FLANGE

**H08**

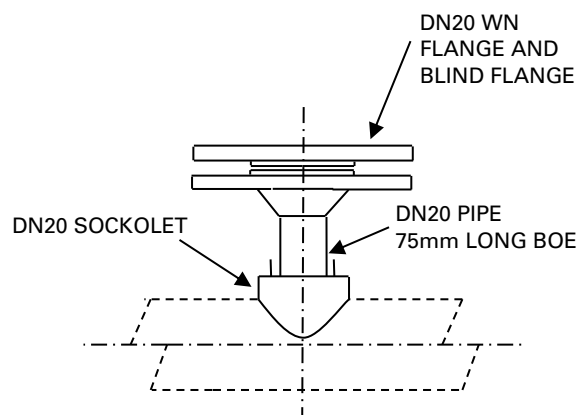
DN20 BLIND FLANGE.



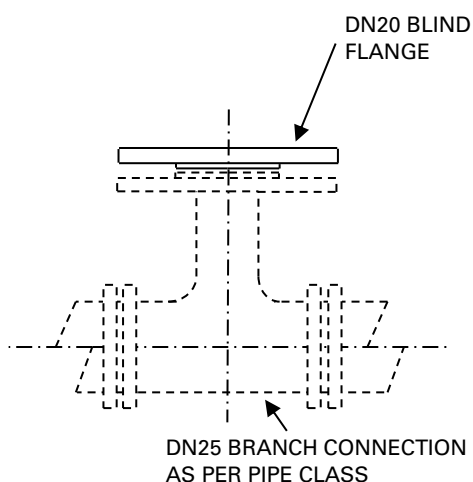
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES USE SUITABLE PIPE LENGTH BETWEEN WELDOLET AND FLANGE
3. FOR RUN SIZE OVER DN600 USE DN25 VENT ASSEMBLY.

**H09**

**NOTES:**

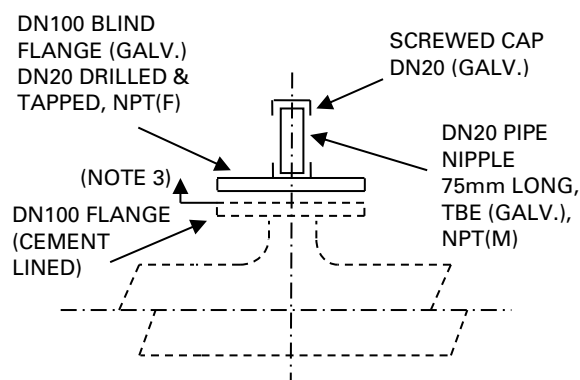
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**H10**

**NOTES:**

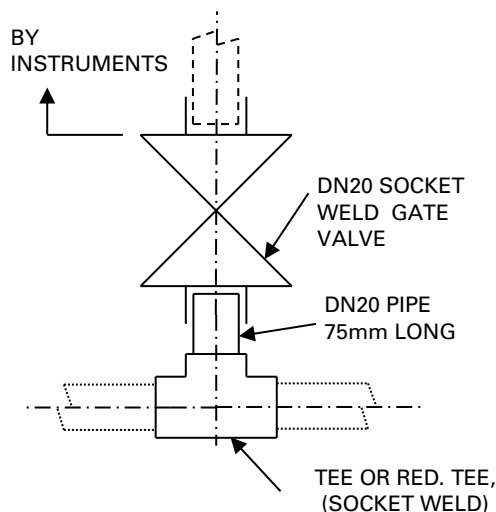
1. FOR RUN SIZE DN50 – DN600 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. FOR RUN SIZE OVER DN600 USE DN25 VENT ASSEMBLY

**H11**

**NOTES:**

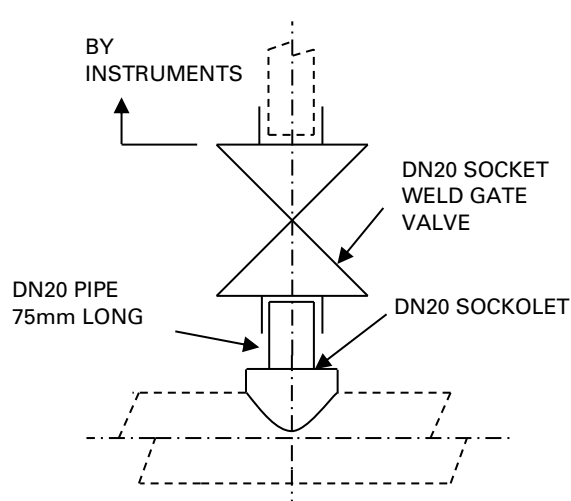
1. FOR RUN SIZE DN25 & ABOVE

**H12**

**NOTES:**

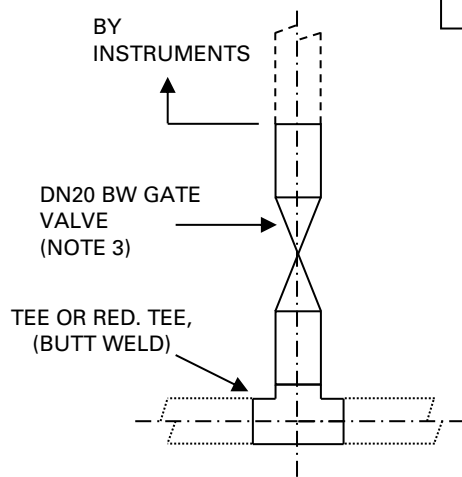
1. FOR RUN SIZE DN100 – DN600 ONLY.
2. FOR RUN SIZE OVER DN600 USE DN25 VENT ASSEMBLY.
3. USE PIPING ITEMS AS PER PIPE CLASS S1RW.

**P01**

**NOTES:**

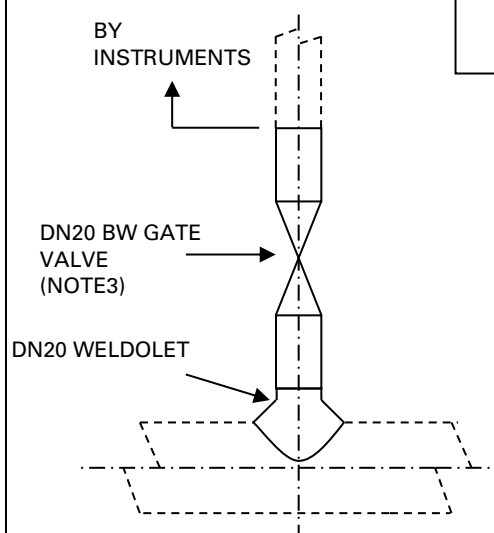
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**P02**

**NOTES:**

1. FOR RUN SIZE DN50 AND ABOVE.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

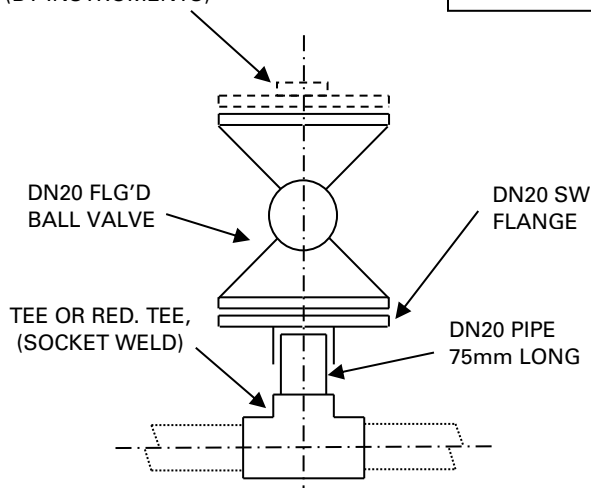
**P03**

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY ON THE BRANCH OUTLET.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH SIDES OF THE VALVE.

**P04**

**NOTES:**

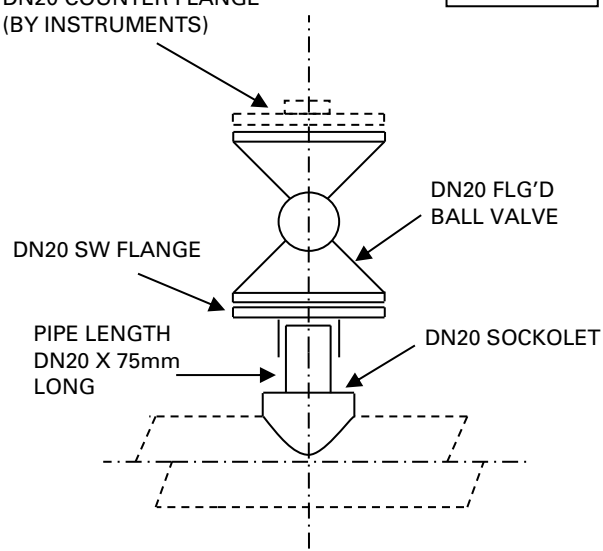
1. FOR RUN SIZE DN50 AND ABOVE.
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY ON THE BRANCH OUTLET.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH SIDES OF THE VALVE.

DN20 COUNTER FLANGE  
(BY INSTRUMENTS)

**P05**

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. BOLTS & GASKETS BY PIPING

DN20 COUNTER FLANGE  
(BY INSTRUMENTS)

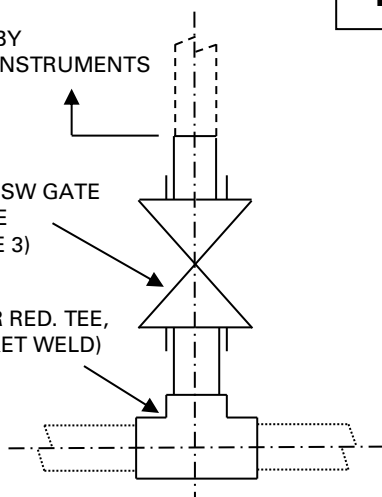
**P06**

**NOTES:**

1. FOR RUN SIZE DN50 AND ABOVE.
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.
3. BOLTS & GASKETS BY PIPING

BY  
INSTRUMENTS

**P07**

DN20 SW GATE  
VALVE  
(NOTE 3)

TEE OR RED. TEE,  
(SOCKET WELD)

**NOTES:**

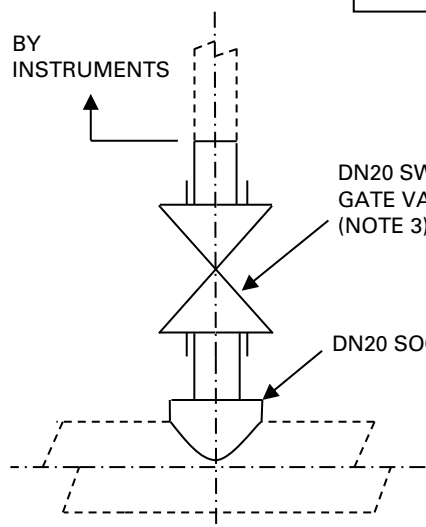
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH SIDES OF THE VALVE.

BY  
INSTRUMENTS

**P08**

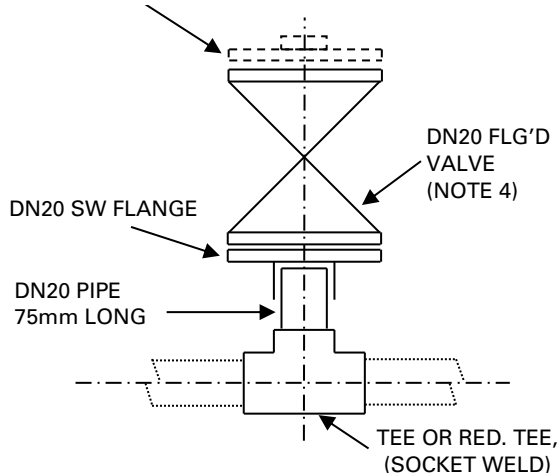
DN20 SW  
GATE VALVE  
(NOTE 3)

DN20 SOCKOLET


**NOTES:**

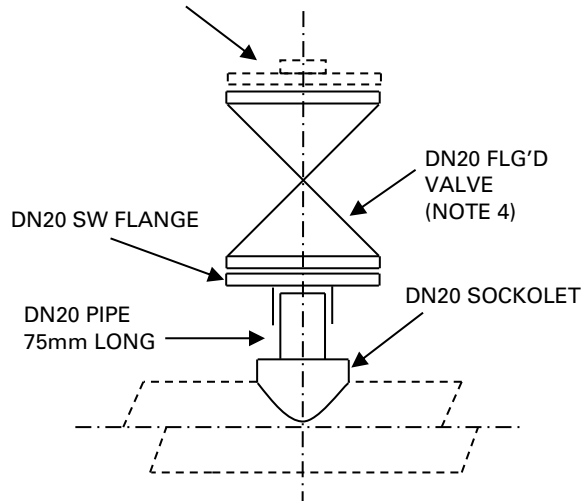
1. FOR RUN SIZE DN50 AND ABOVE.
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH SIDES OF THE VALVE.

**P09**

DN20 COUNTER FLANGE  
(BY INSTRUMENTS)

**NOTES:**

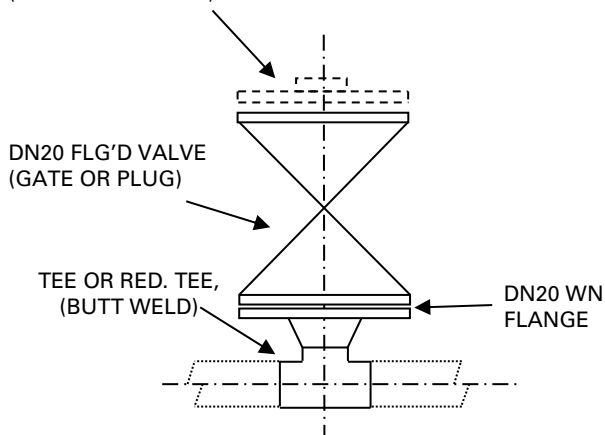
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES PIPE LENGTH MAY BE ADDED TO SUIT.
3. BOLTS & GASKETS BY PIPING.
4. GATE / PLUG VALVE AS PER PIPE CLASS.

**P10**

DN20 COUNTER FLANGE  
(BY INSTRUMENTS)

**NOTES:**

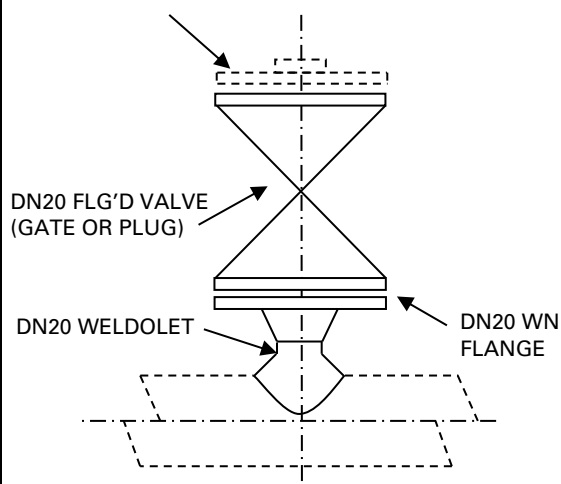
1. FOR RUN SIZE DN50 AND ABOVE.
2. FOR INSULATED LINES PIPE LENGTH MAY BE ADDED TO SUIT.
3. BOLTS & GASKETS BY PIPING.
4. GATE / PLUG VALVE AS PER PIPE CLASS.

**P11**

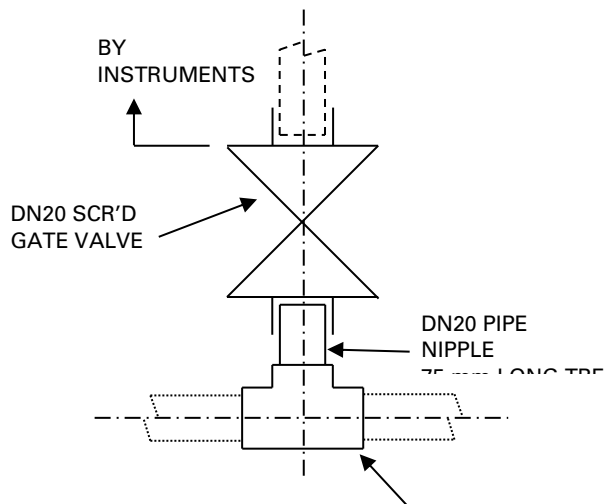
DN20 COUNTER FLANGE  
(BY INSTRUMENTS)

**NOTES:**

1. FOR RUN SIZE DN20 – DN40 ONLY.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. BOLTS & GASKETS BY PIPING.

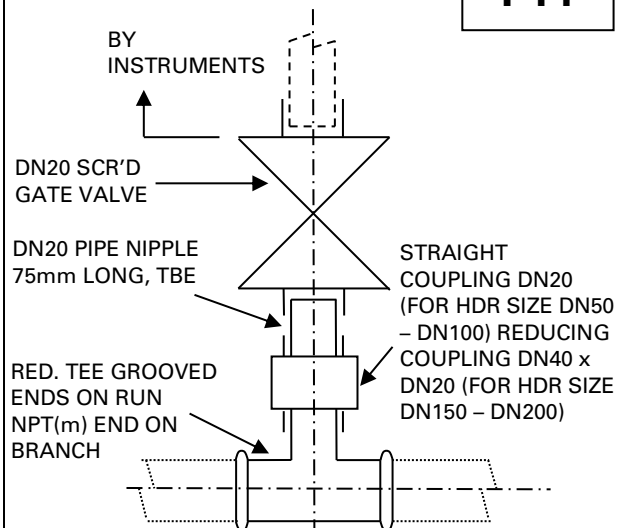
**P12**

DN20 COUNTER FLANGE  
(BY INSTRUMENTS)

**NOTES:**

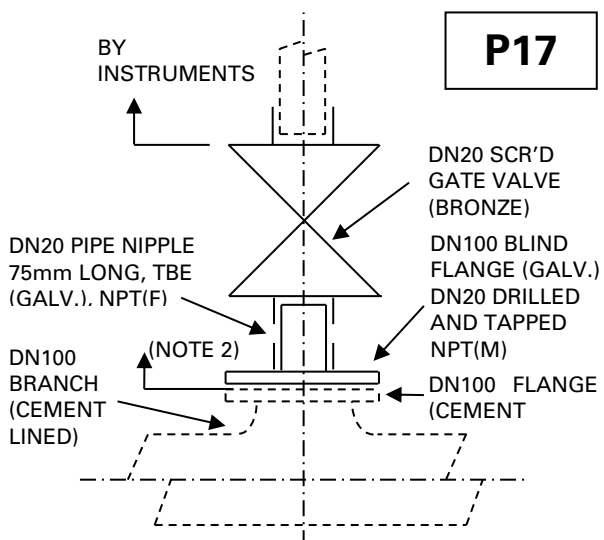
1. FOR RUN SIZE DN50 AND ABOVE.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. BOLTS & GASKETS BY PIPING.

**P13**

**NOTES:**

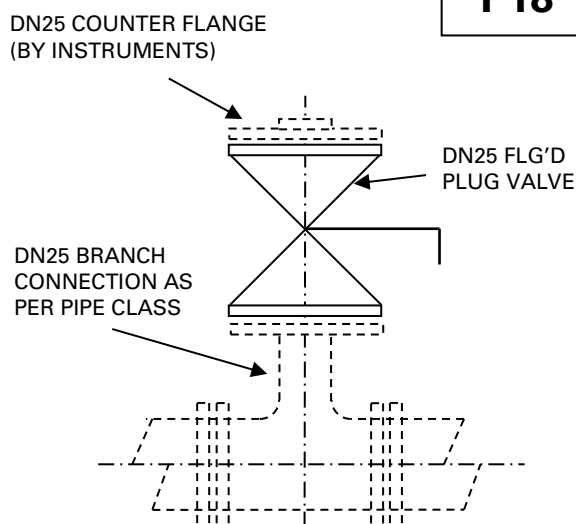
1. FOR RUN SIZE DN20 – DN40 ONLY.
2. PIPE NIPPLE LENGTH MAY NEED TO BE INCREASED
3. BOLTS & GASKETS BY PIPING

**P14**

**NOTES:**

1. FOR RUN SIZE DN50 – DN200.

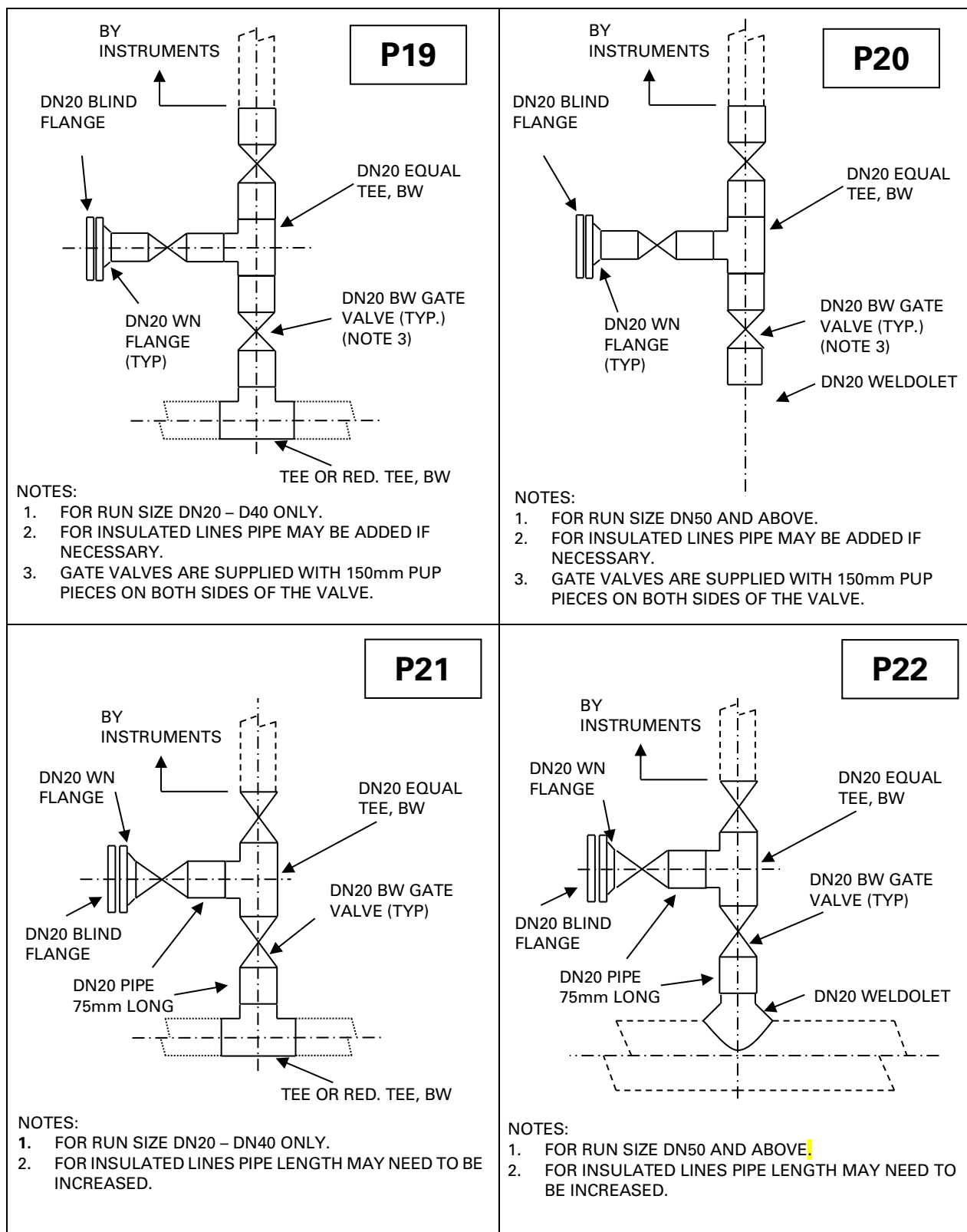
**P17**

**NOTES:**

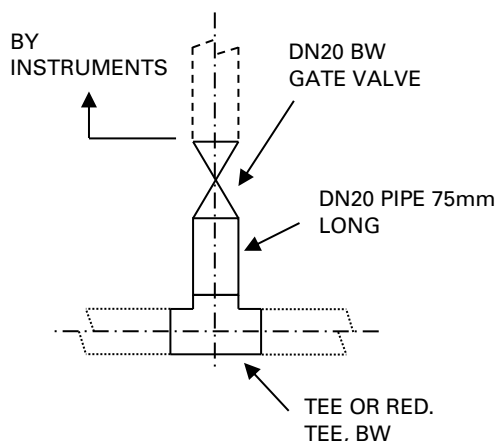
1. FOR RUN SIZE DN100 & ABOVE.
2. USE PIPING ITEMS AS PER PIPE CLASS S1RW

**P18**

**NOTES:**

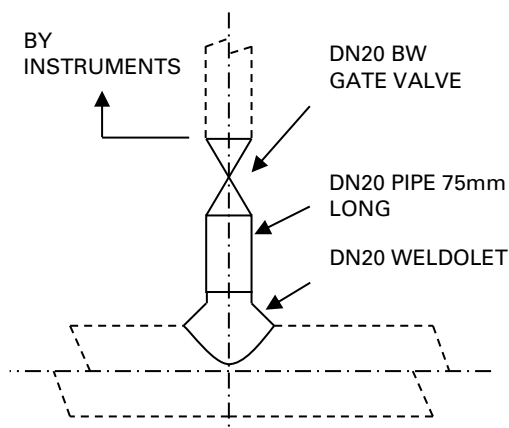
1. FOR RUN SIZE DN25 & ABOVE.
2. FOR INSULATED LINES FLANGED SPOOLS OR SPACERS MAY BE ADDED IF REQUIRED.
3. BOLTS & GASKETS BY PIPING.



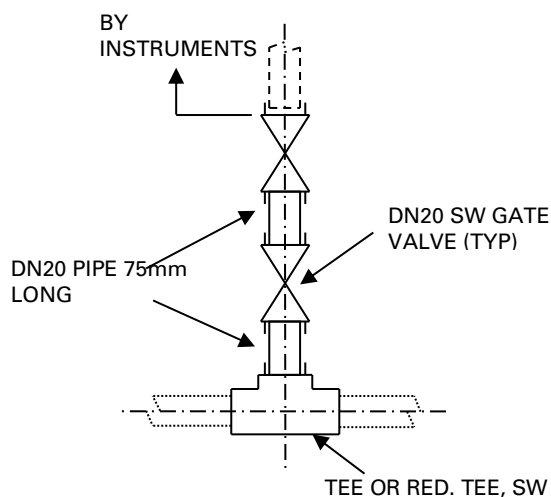


**P25**

**NOTES:**

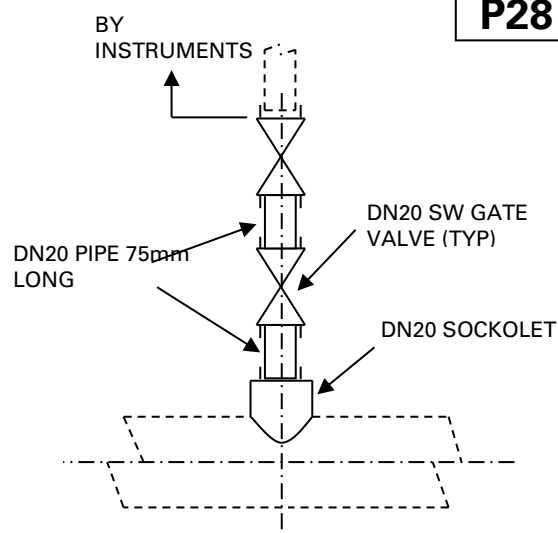
1. FOR RUN SIZE DN20 – DN40 ONLY
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**P26**

**NOTES:**

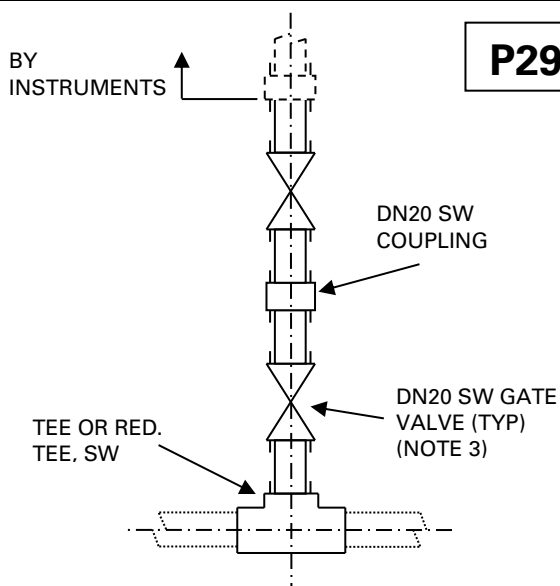
1. FOR RUN SIZE DN50 AND ABOVE
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**P27**

**NOTES:**

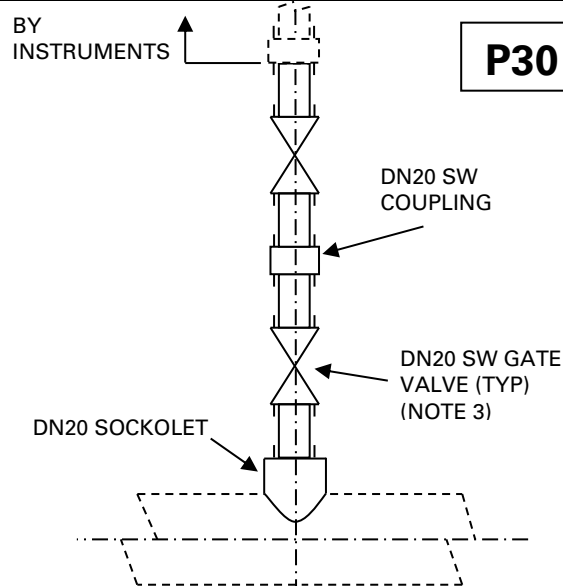
1. FOR RUN SIZE DN20 – DN40 ONLY
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.

**P28**

**NOTES:**

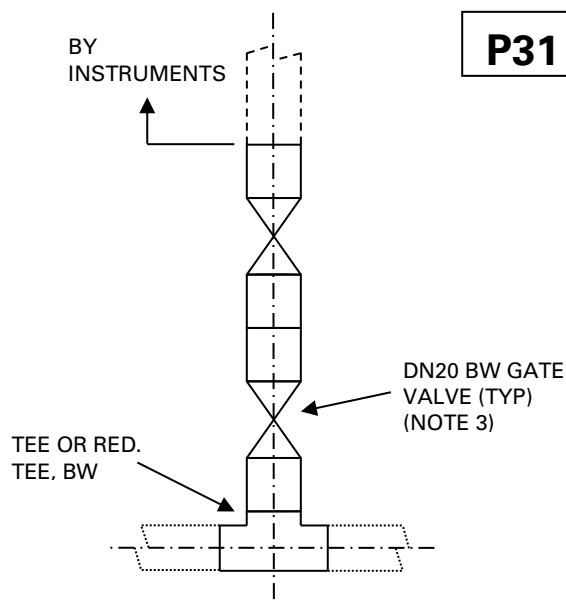
1. FOR RUN SIZE DN50 AND ABOVE
2. FOR INSULATED LINES PIPE LENGTH MAY NEED TO BE INCREASED.


**NOTES:**

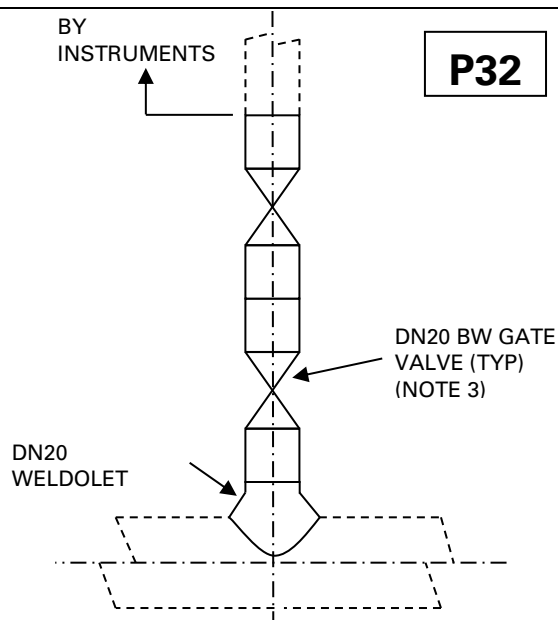
1. FOR RUN SIZE DN20 – DN40 ONLY
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE


**NOTES:**

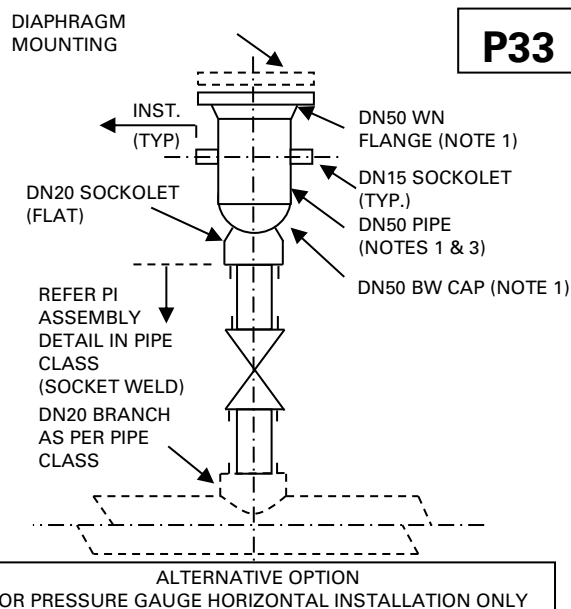
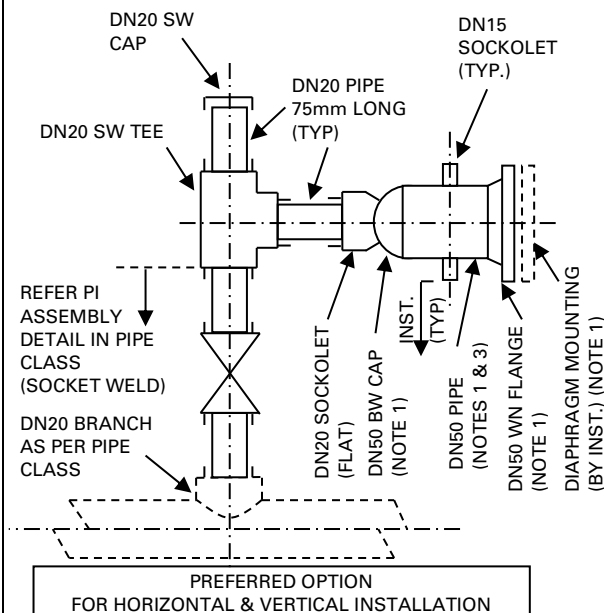
1. FOR RUN SIZE DN20 AND ABOVE
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE


**NOTES:**

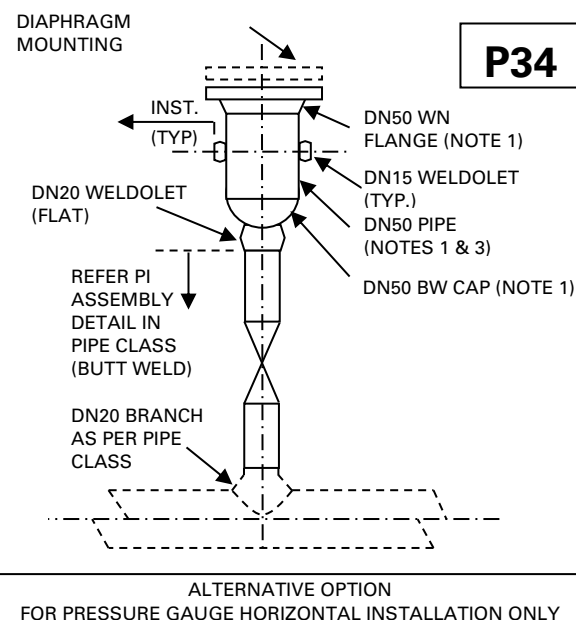
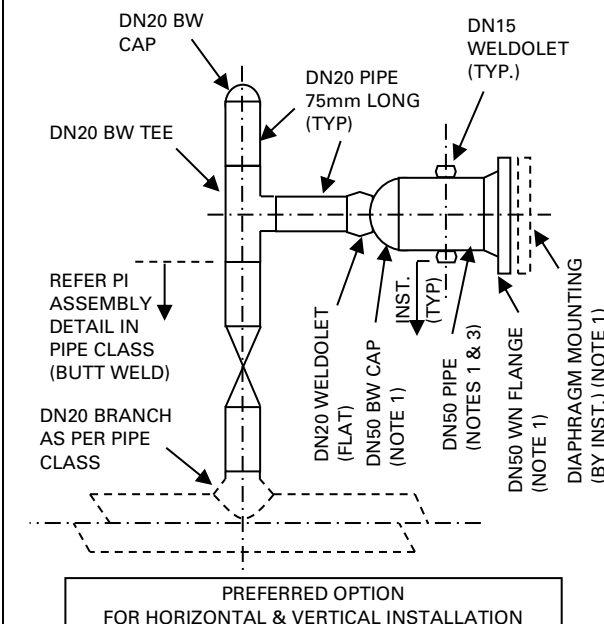
1. FOR RUN SIZE DN20 – DN40 ONLY
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE


**NOTES:**

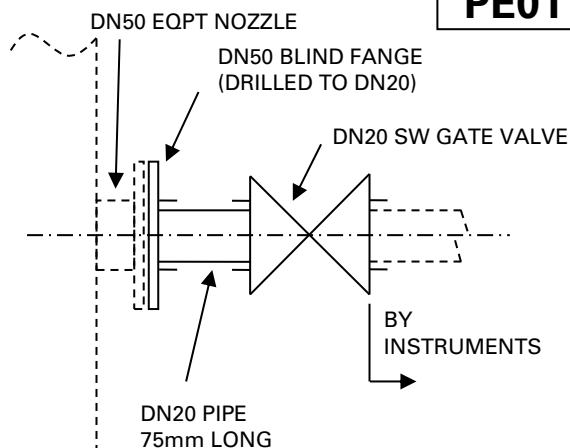
1. FOR RUN SIZE DN50 AND ABOVE
2. FOR INSULATED LINES PIPE MAY BE ADDED IF NECESSARY.
3. GATE VALVES ARE SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE


**NOTES:**

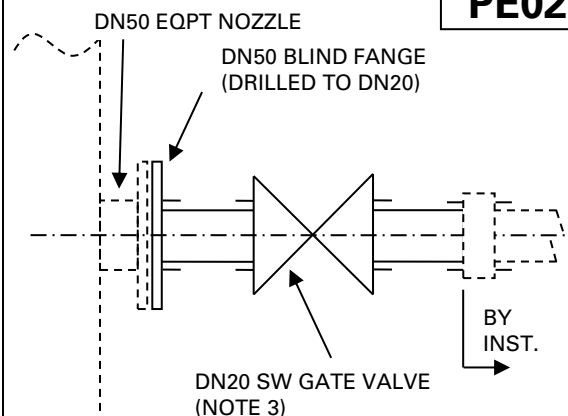
1. DIAPHRAGM MOUNTING SIZE IS CONSIDERED AS DN50. THIS SHALL BE CHECKED WITH INSTRUMENTS AND IF ANY CHANGE IN SIZE REQUIRED, OTHER PIPING ITEM SIZES SHALL BE CHANGED ACCORDINGLY.
2. BOLTS & GASKETS BY PIPING.
3. PIPE LENGTH TO BE KEPT TO A MINIMUM.(RECOMMENDED MIN. LENGTH IS 100mm)


**NOTES:**

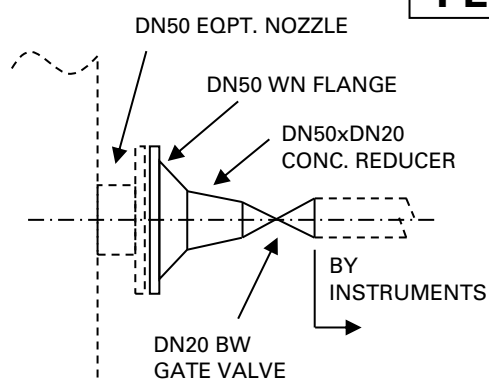
1. DIAPHRAGM MOUNTING SIZE IS CONSIDERED AS DN50. THIS SHALL BE CHECKED WITH INSTRUMENTS AND IF ANY CHANGE IN SIZE REQUIRED, OTHER PIPING ITEM SIZES SHALL BE CHANGED ACCORDINGLY.
2. BOLTS & GASKETS BY PIPING.
3. PIPE LENGTH TO BE KEPT TO A MINIMUM.(RECOMMENDED MIN. LENGTH IS 100mm)

**PE01**

**NOTES:**

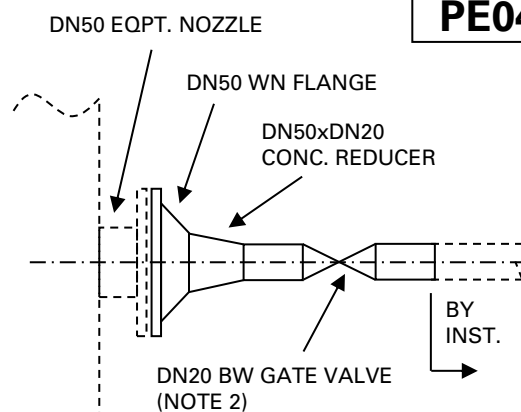
1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.

**PE02**

**NOTES:**

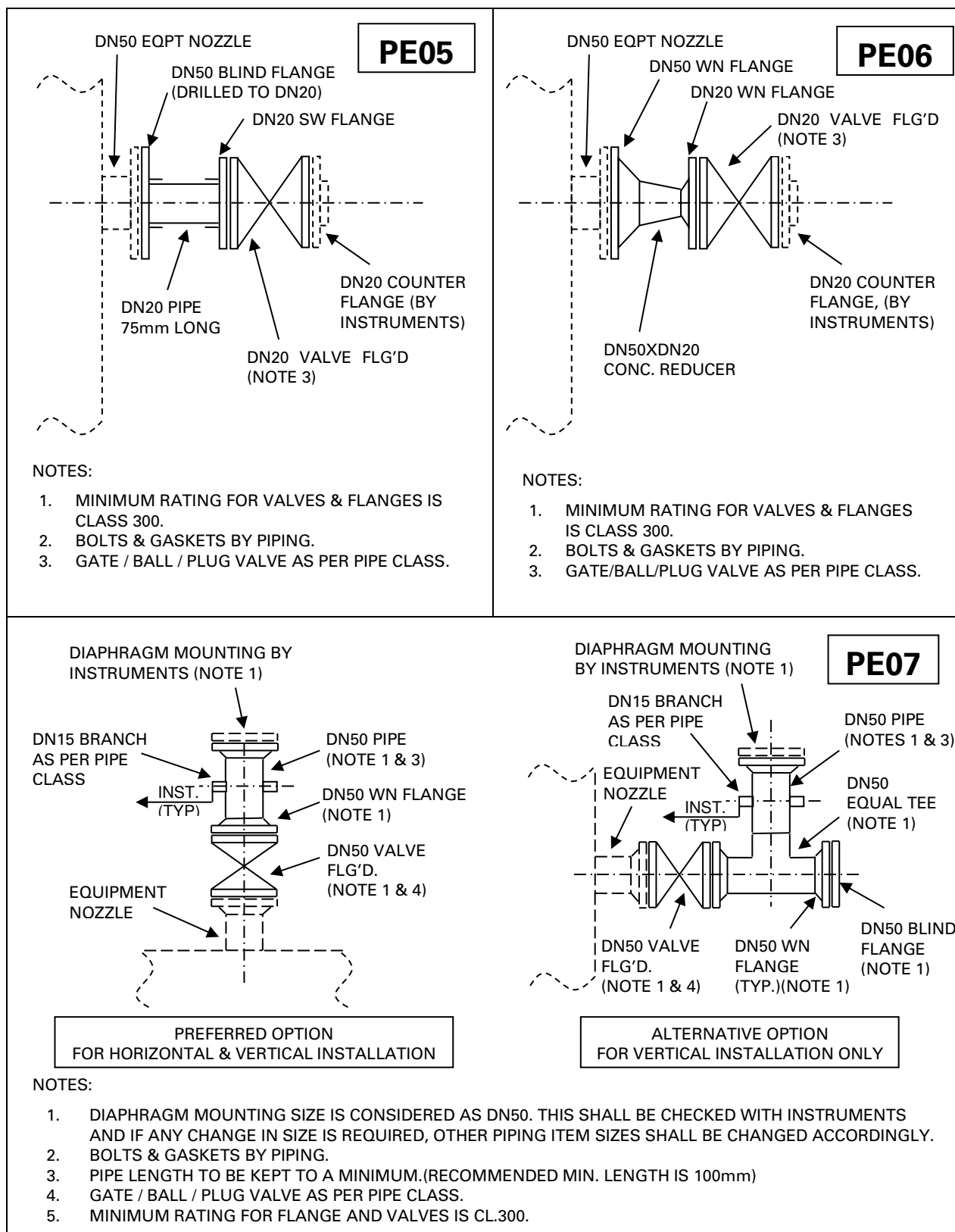
1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.
3. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF VALVE.

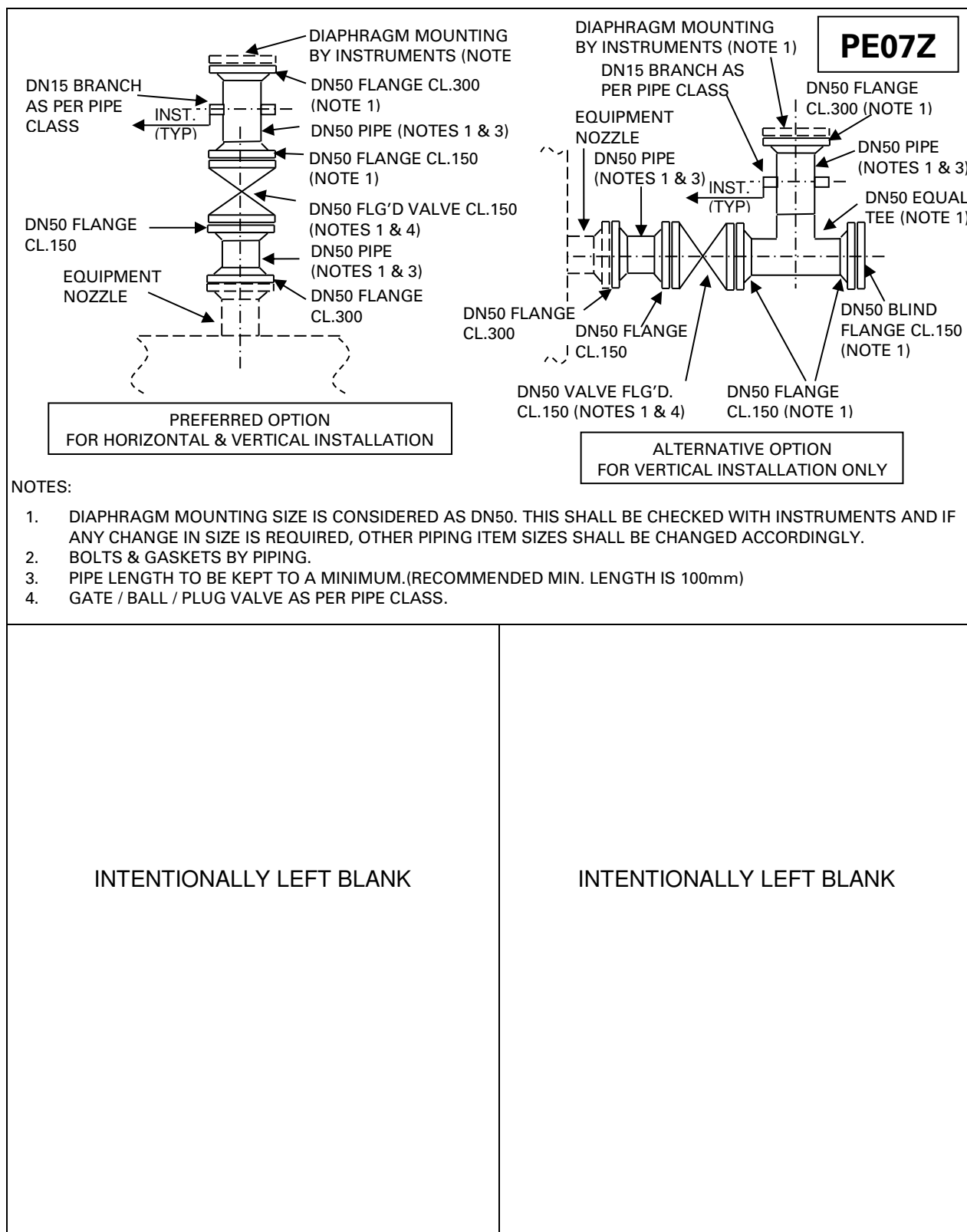
**PE03**

**NOTES:**

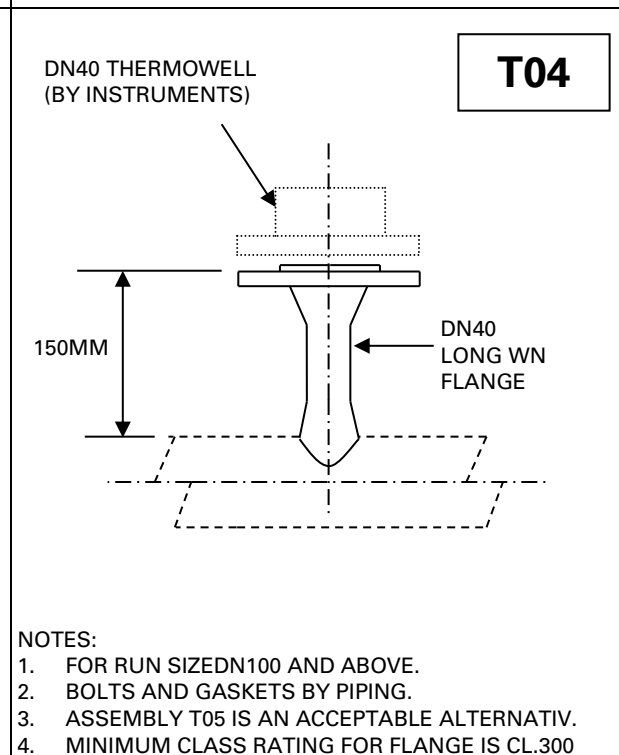
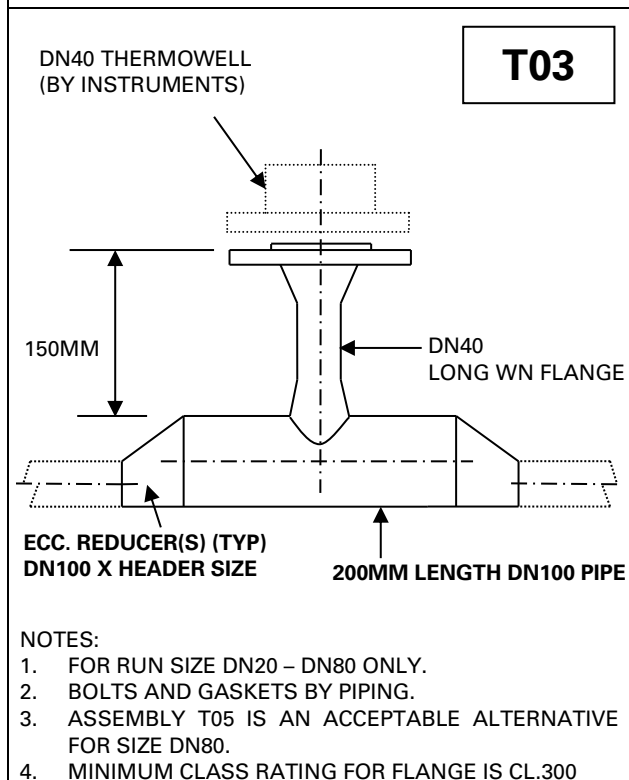
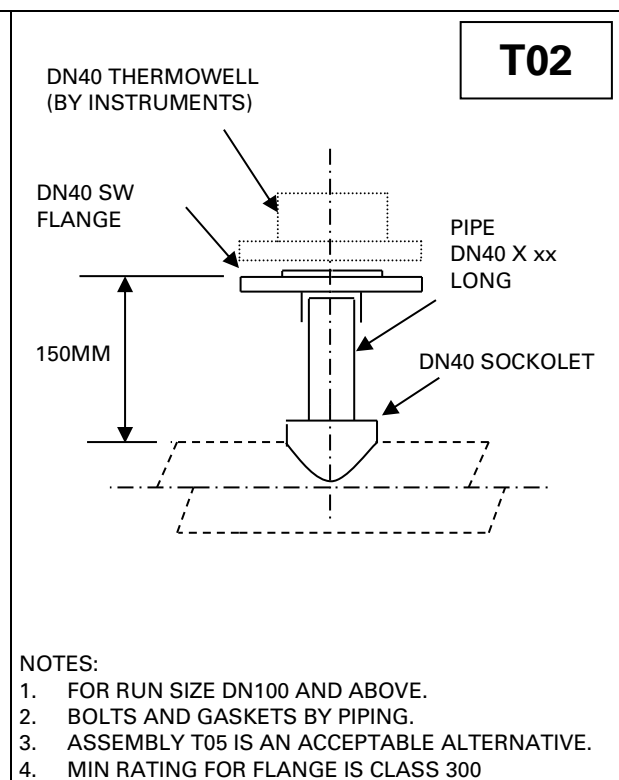
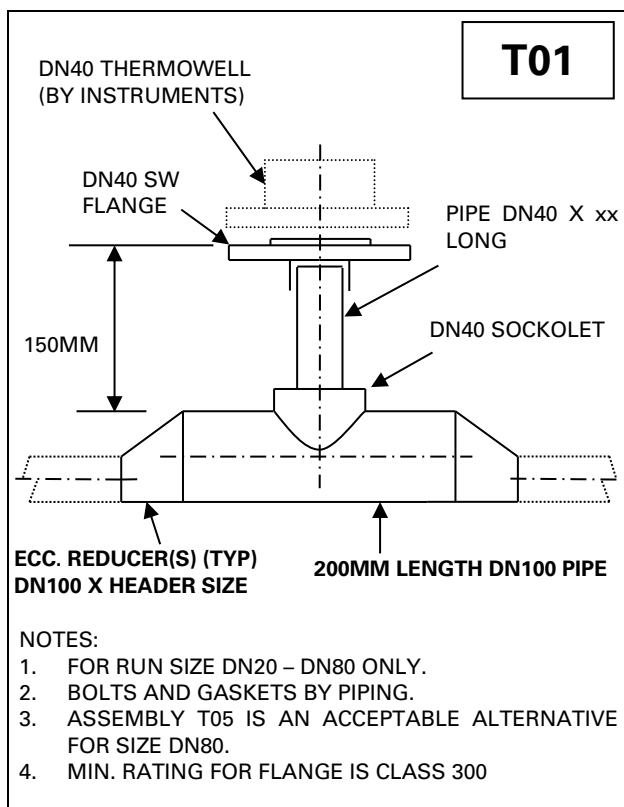
1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.

**PE04**

**NOTES:**

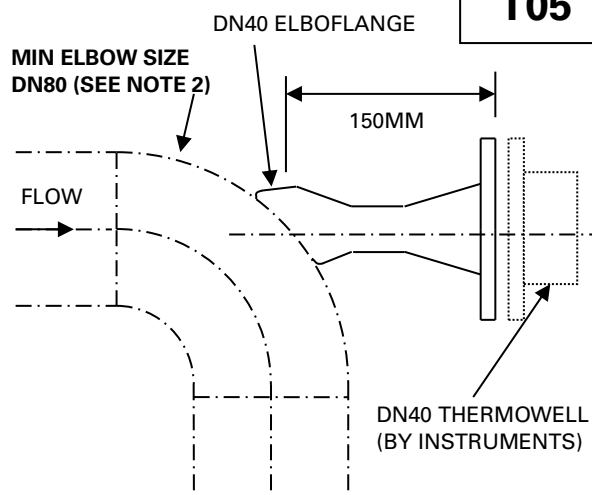
1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.
3. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF VALVE.



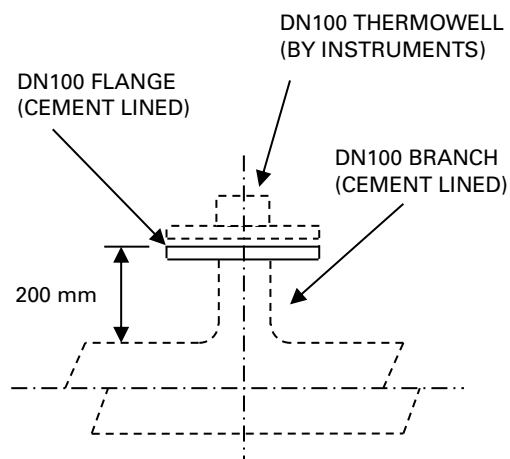




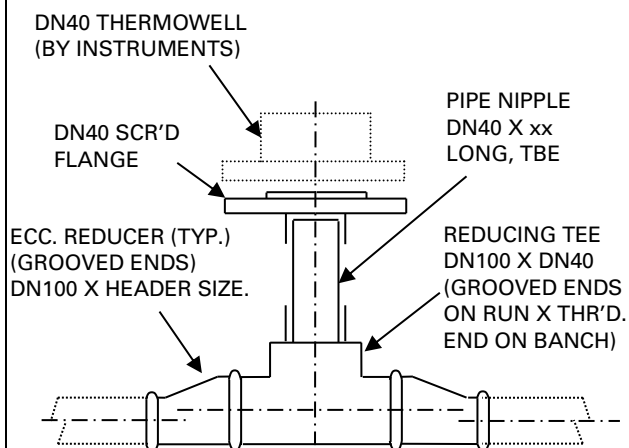


**T05**

**NOTES:**

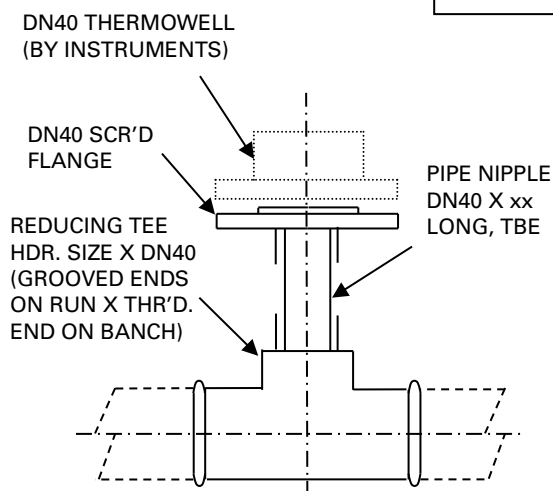
1. BOLTS AND GASKETS BY PIPING.
2. FOR HEADER SIZES DN50 AND BELOW LINE SIZE TO BE INCREASED TO DN80 LOCALLY TO ELBOW USING REDUCERS.
3. MINIMUM CLASS RATING FOR FLANGE IS CL.300

**T06**

**NOTES:**

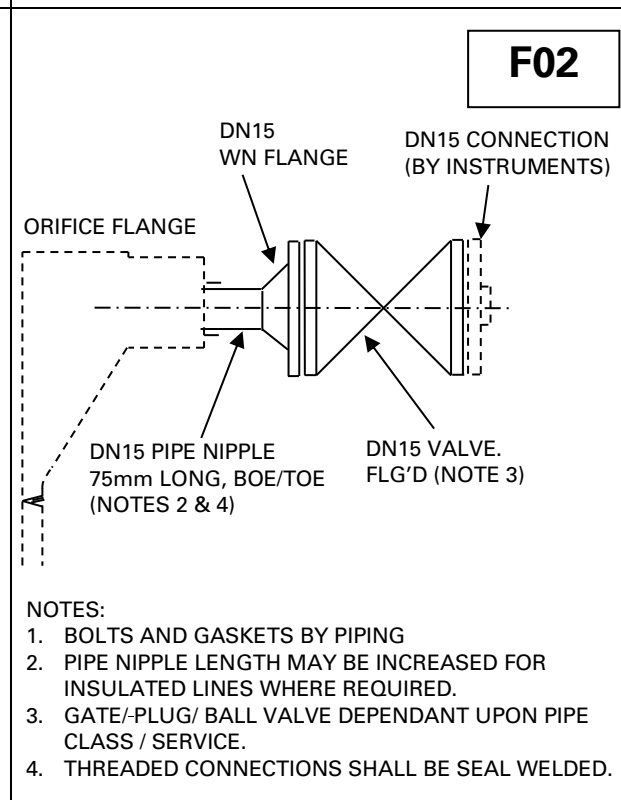
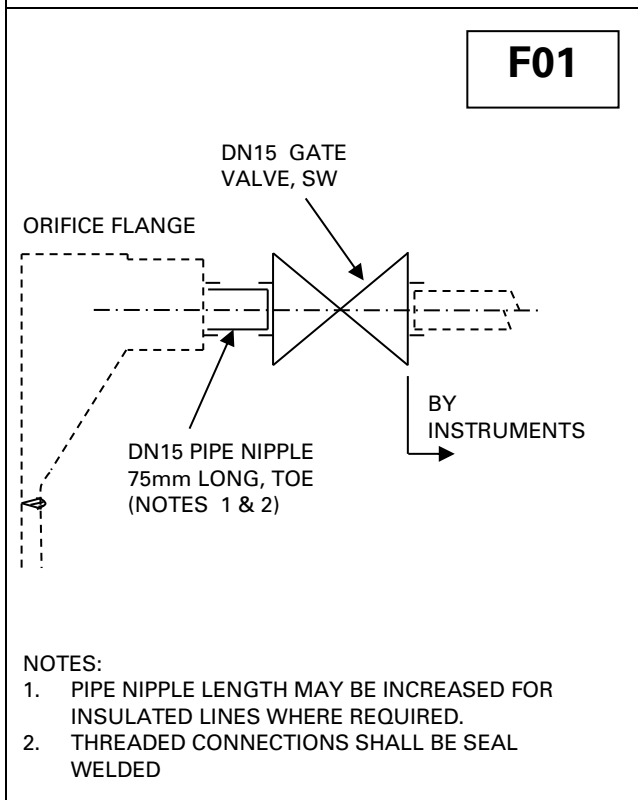
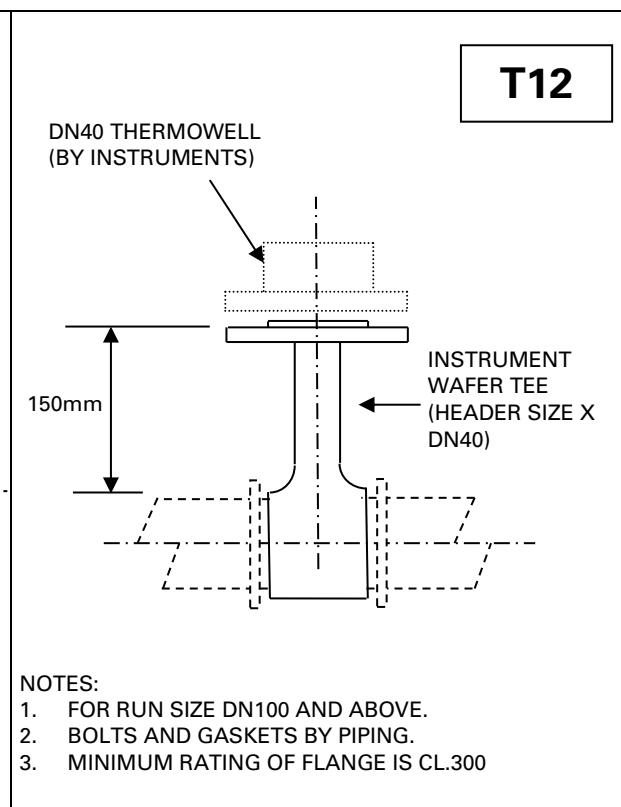
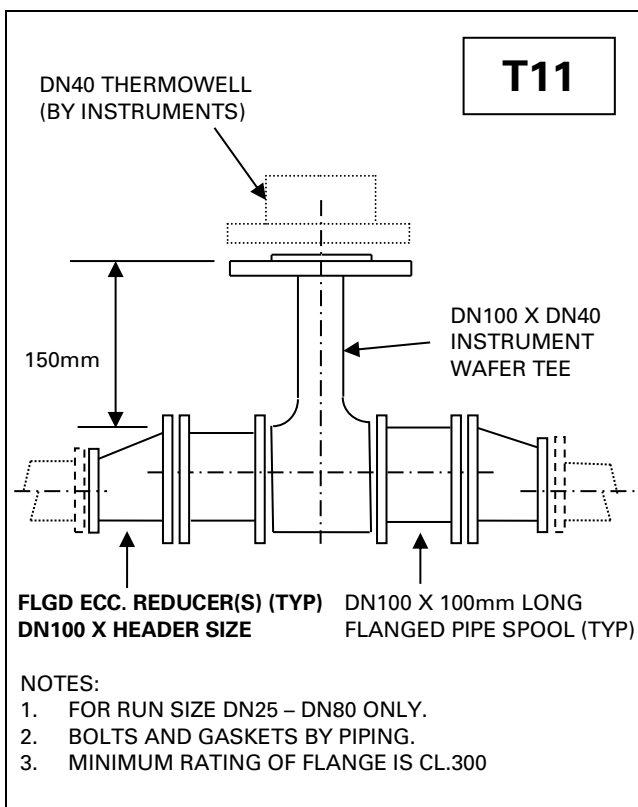
1. FOR RUN SIZE DN100 & ABOVE.
2. BOLTS & GASKETS BY PIPING.
3. MINIMUM CLASS RATING FOR FLANGE IS CL.300

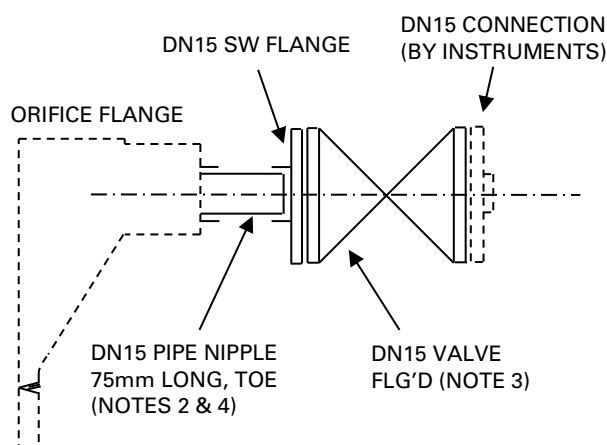
**T07**

**NOTES:**

1. FOR RUN SIZE DN50 – DN80 ONLY.
2. BOLTS AND GASKETS BY PIPING.
3. MINIMUM RATING OF FLANGE IS CL.300

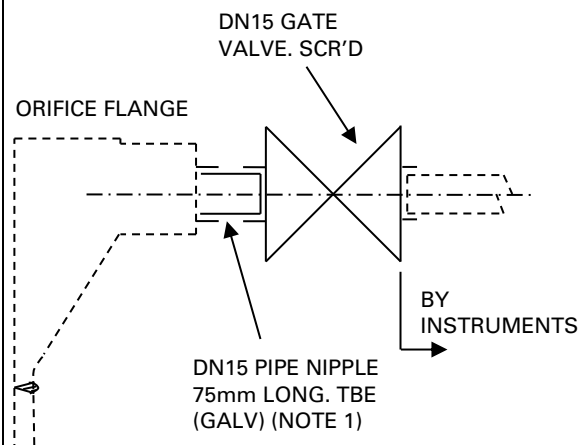
**T08**

**NOTES:**

1. FOR RUN SIZE DN100 – DN200.
2. BOLTS AND GASKETS BY PIPING.
3. MINIMUM RATING OF FLANGE IS CL.300

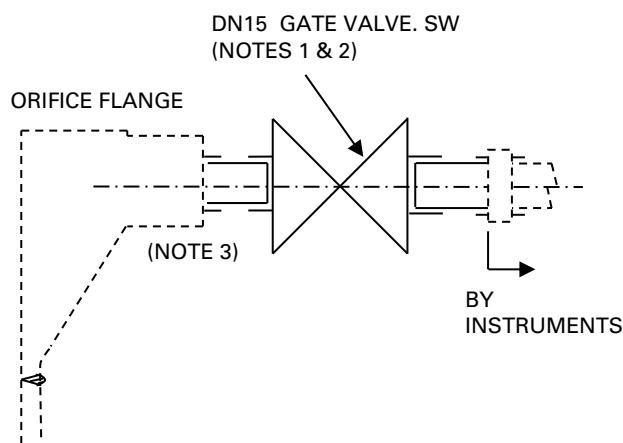


**F03**

**NOTES:**

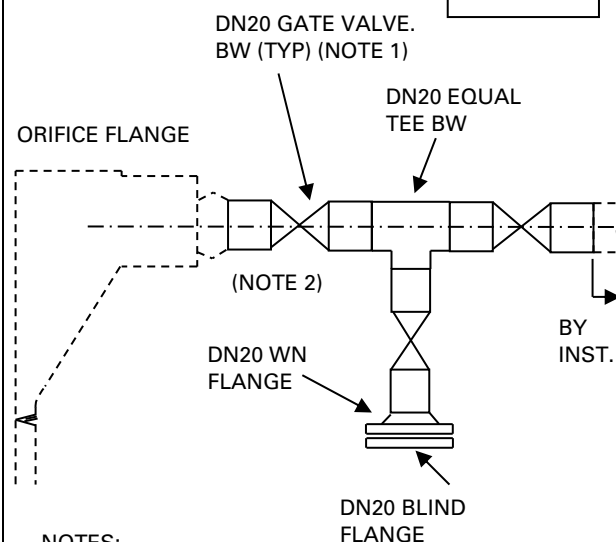
1. BOLTS AND GASKETS BY PIPING
2. PIPE NIPPLE LENGTH MAY BE INCREASED FOR INSULATED LINES WHERE REQUIRED.
3. GATE/PLUG/BALL VALVE DEPENDANT UPON PIPE CLASS / SERVICE.
4. THREADED CONNECTIONS SHALL BE SEAL WELDED.

**F04**

**NOTES:**

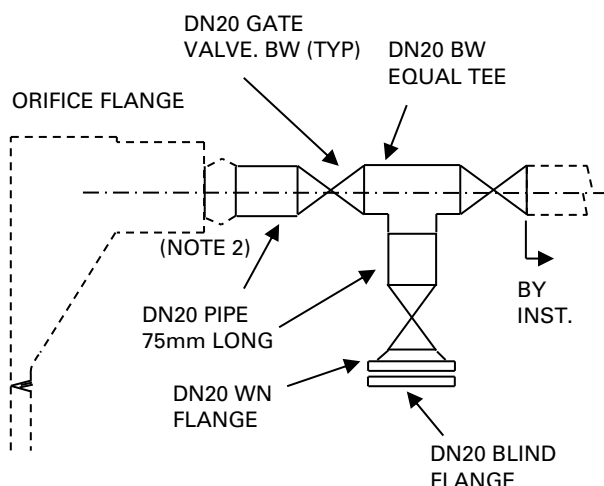
1. PIPE NIPPLE LENGTH MAY BE INCREASED FOR INSULATED LINES WHERE REQUIRED.

**F05**

**NOTES:**

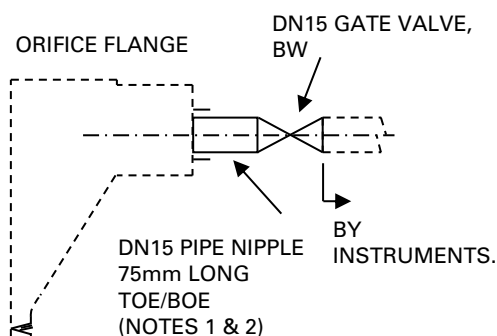
1. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE
2. ONE END OF THE VALVE WITH PUP PIECE SHALL BE THREADED AT SITE TO NPT(m) TO SUIT ORIFICE TAPPING.
3. THREADED CONNECTION SHALL BE SEAL WELDED.

**F06**

**NOTES:**

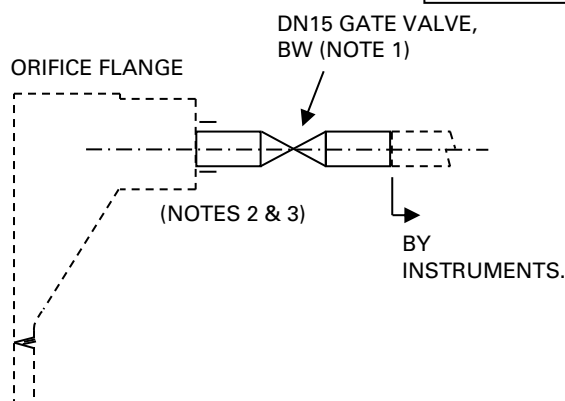
1. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE.
2. VALVE WITH PUP PIECES SHALL BE DIRECTLY WELDED ON TO THE WELDOLET PROVIDED AS PART OF ORIFICE FLANGE SCOPE.

**F07**

**NOTES:**

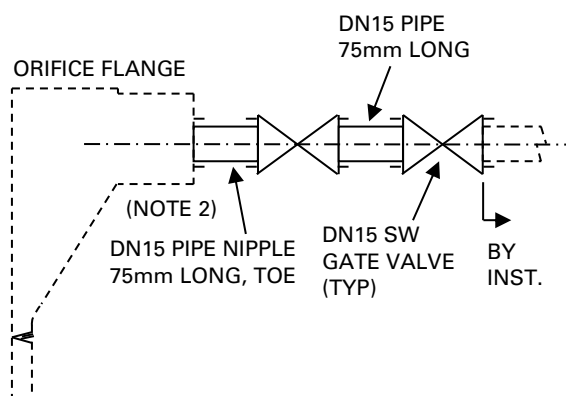
1. PIPE NIPPLE LENGTH MAY BE INCREASED FOR INSULATED LINES WHERE REQUIRED.
2. NIPPLE SHALL BE DIRECTLY BUTT WELDED ONTO THE WELDOLET PROVIDED AS PART OF ORIFICE FLANGE SCOPE.

**F08**

**NOTES:**

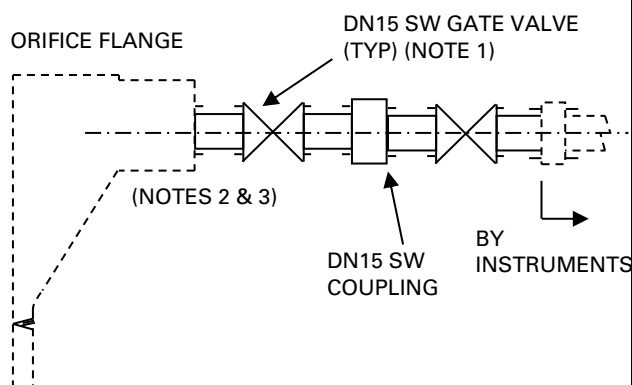
1. PIPE NIPPLE LENGTH MAY BE INCREASED FOR INSULATED LINES WHERE REQUIRED.
2. THREADED CONNECTION SHALL BE SEAL WELDED.

**F09**

**NOTES:**

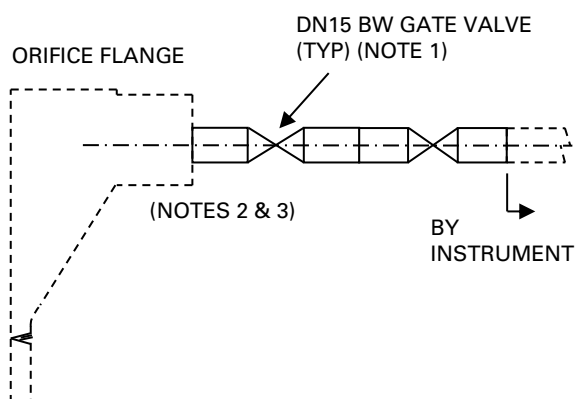
1. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF VALVE.
2. ONE END OF VALVE WITH PUP PIECE SHALL BE THREADED AT SITE TO NPT(M) TO SUIT ORIFICE TAPPING.
3. THREADED CONNECTION SHALL BE SEAL WELDED.

**F10**

**NOTES:**

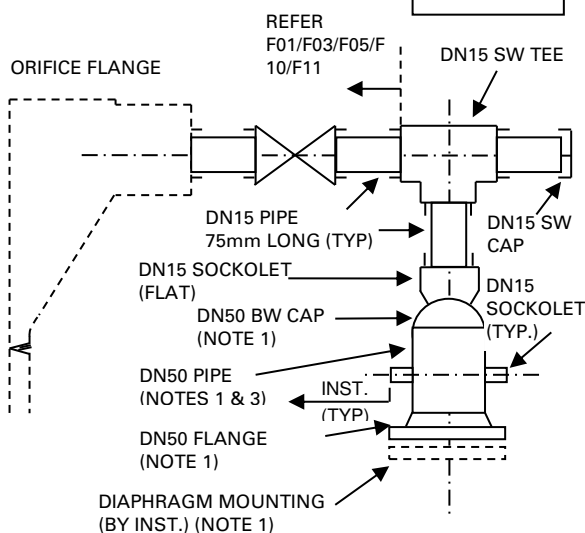
1. PIPE NIPPLE LENGTH MAY BE INCREASED FOR INSULATED LINES WHERE REQUIRED.
2. THREADED CONNECTIONS SHALL BE SEAL WELDED.

**F11**

**NOTES:**

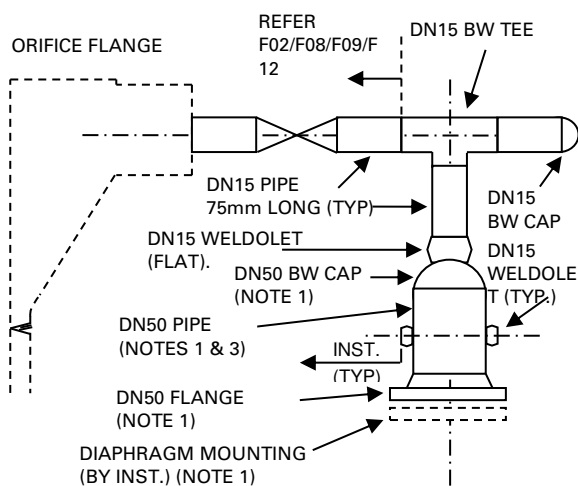
1. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF VALVE.
2. ONE END OF VALVE WITH PUP PIECE SHALL BE THREADED AT SITE TO NPT(m) TO SUIT ORIFICE TAPPING.
3. THREADED CONNECTION SHALL BE SEAL WELDED.

**F12**

**NOTES:**

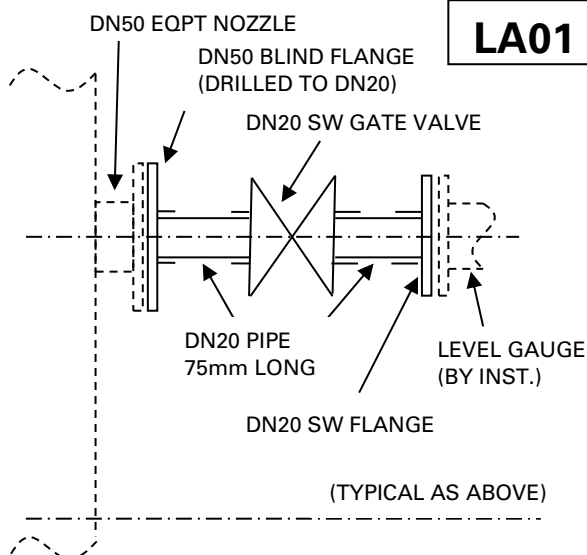
1. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF VALVE.
2. ONE END OF VALVE WITH PUP PIECE SHALL BE THREADED AT SITE TO NPT(m) TO SUIT ORIFICE TAPPING.
3. THREADED CONNECTION SHALL BE SEALED WELDED.

**F13**

**NOTES:**

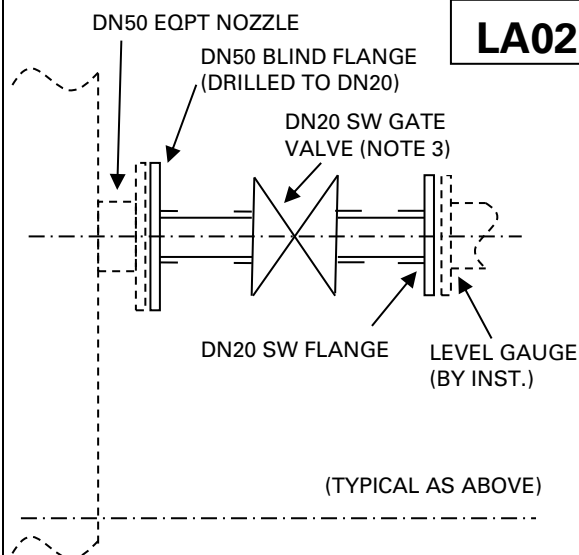
1. DIAPHRAGM MOUNTING SIZE IS CONSIDERED AS DN50. THIS IS TO BE CHECKED WITH INSTRUMENTS AND OTHER PIPING ITEM SIZES TO BE CHANGED IF SIZE CHANGE IS REQUIRED.
2. BOLTS & GASKETS BY PIPING.
3. PIPE LENGTH TO BE KEPT TO MINIMUM. (RECOMMENDED MIN LENGTH IS 100mm)

**F14**

**NOTES:**

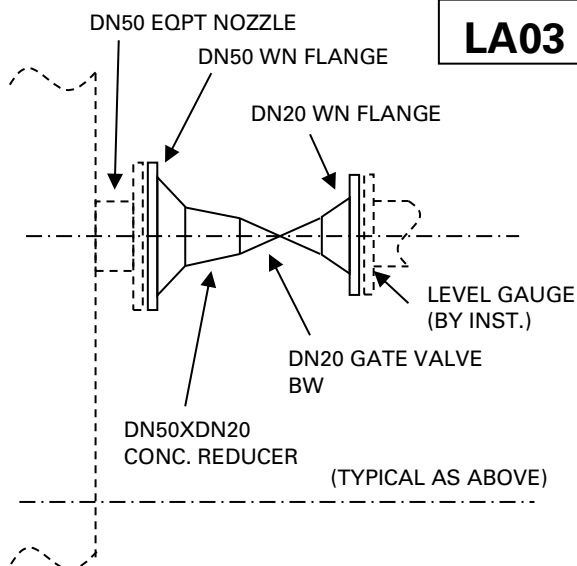
1. DIAPHRAGM MOUNTING SIZE IS CONSIDERED AS DN50. THIS IS TO BE CHECKED WITH INSTRUMENTS AND OTHER PIPING ITEM SIZES TO BE CHANGED IF SIZE CHANGE IS REQUIRED.
2. BOLTS & GASKETS BY PIPING.
3. PIPE LENGTH TO BE KEPT TO MINIMUM. (RECOMMENDED MIN LENGTH IS 100mm)


**NOTES:**

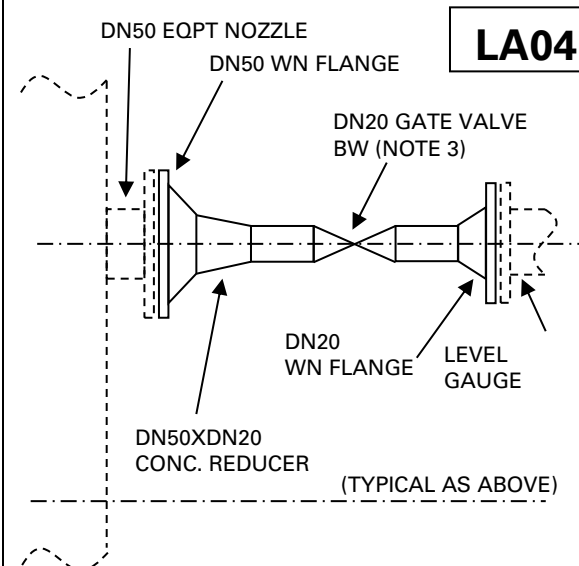
1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.


**NOTES:**

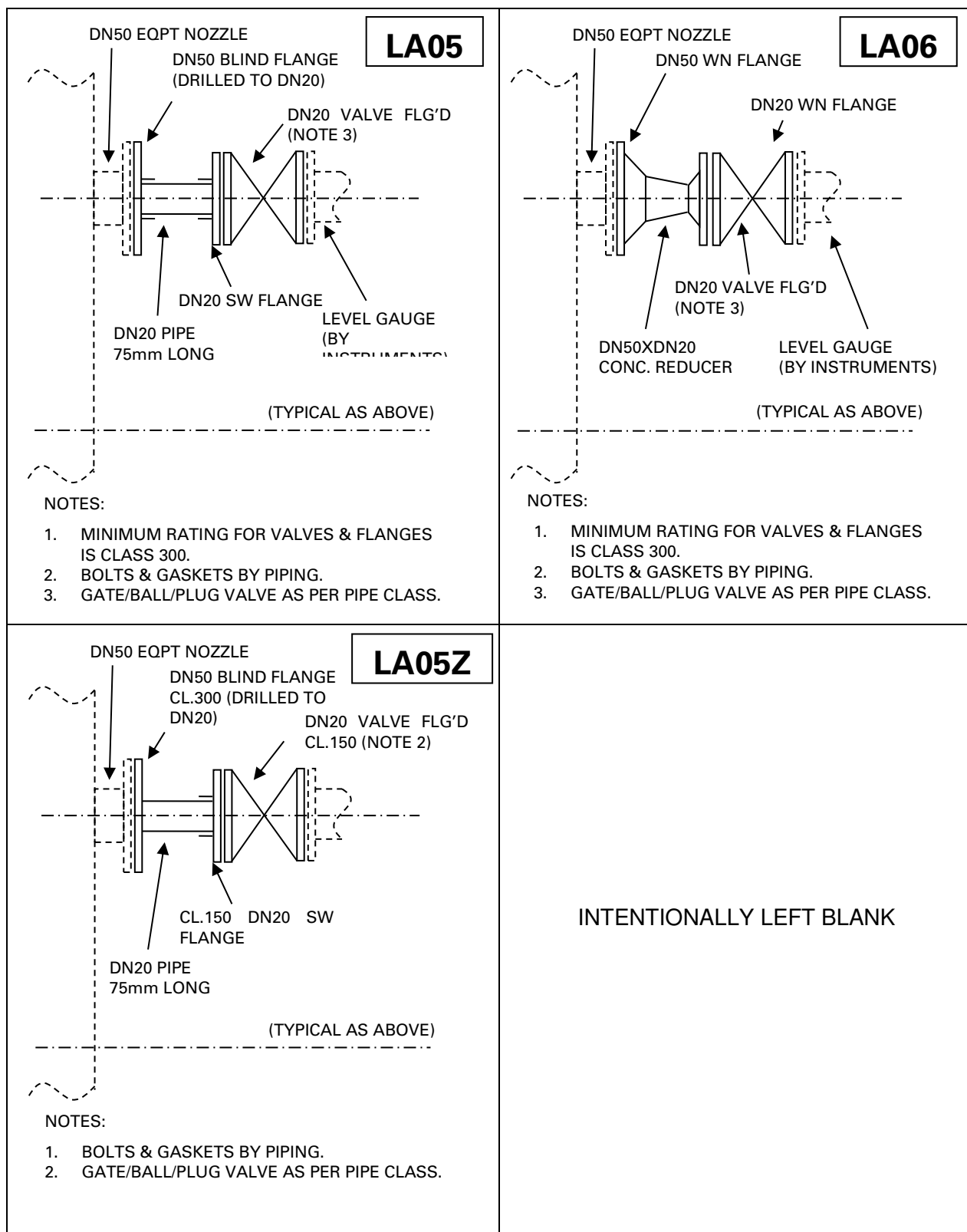
1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.
3. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF VALVE

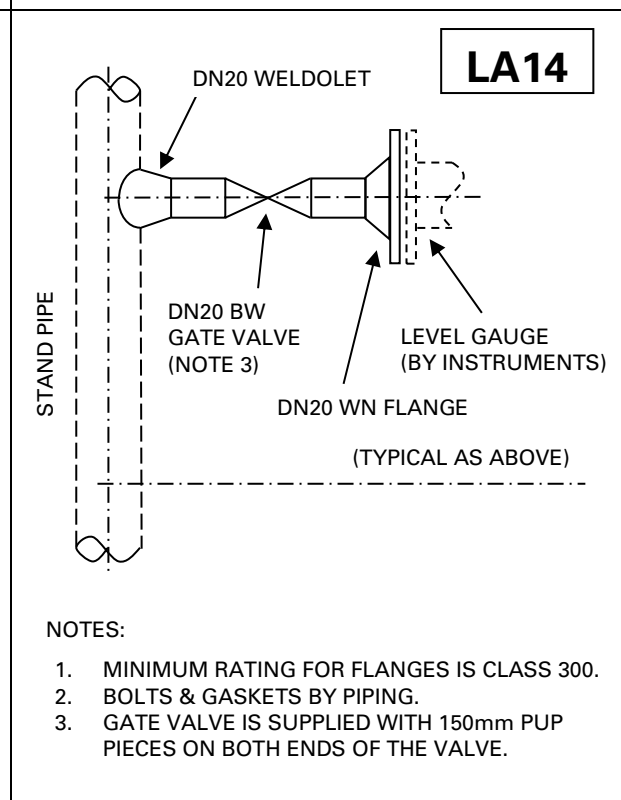
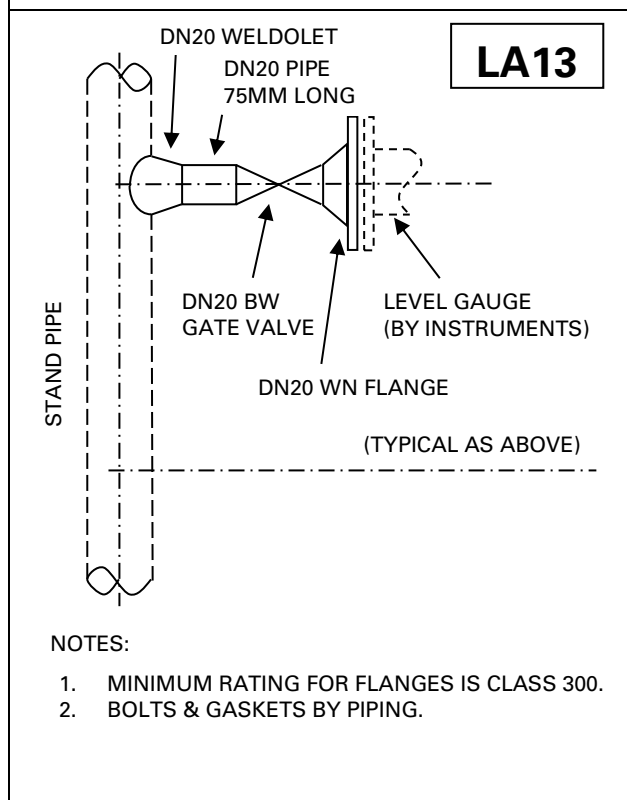
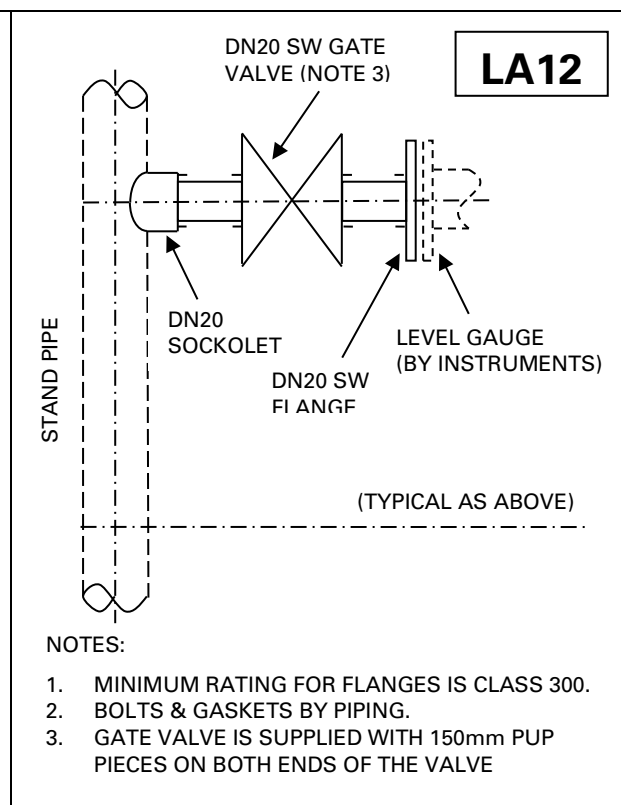
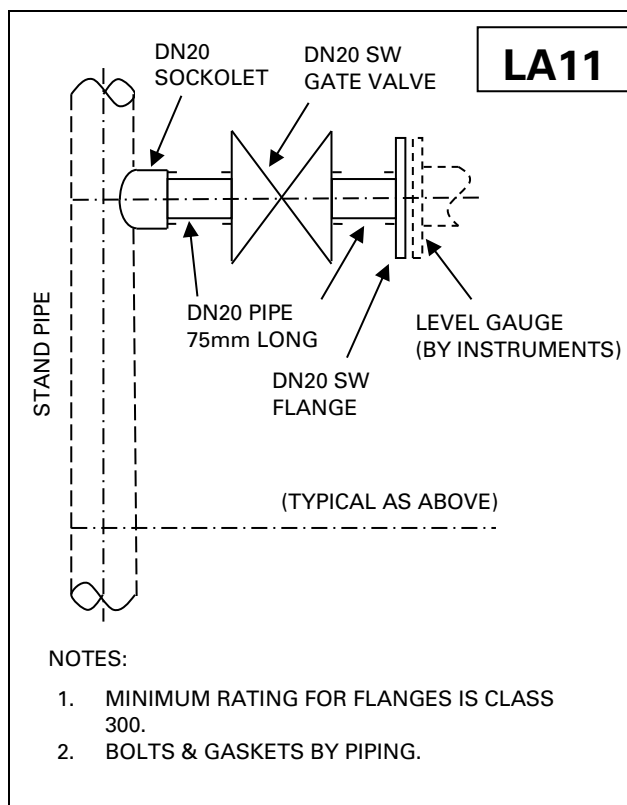

**NOTES:**

1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.

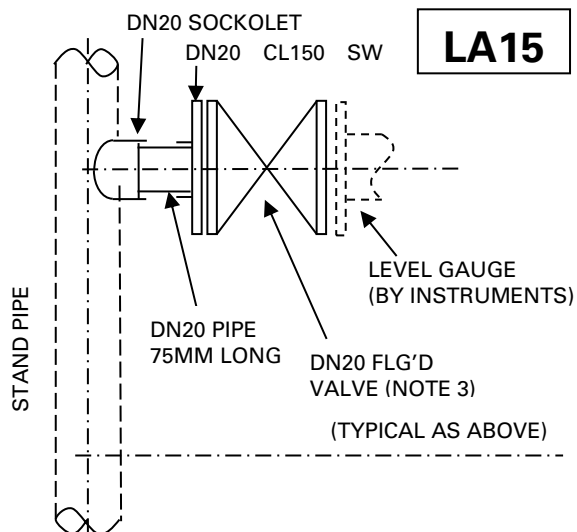

**NOTES:**

1. MINIMUM RATING FOR FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.
3. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE.

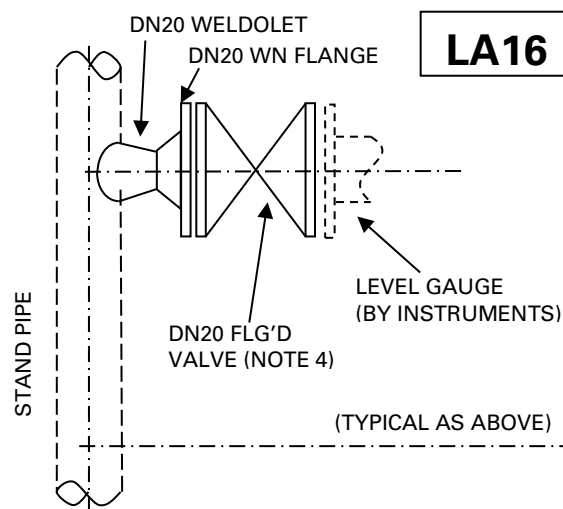




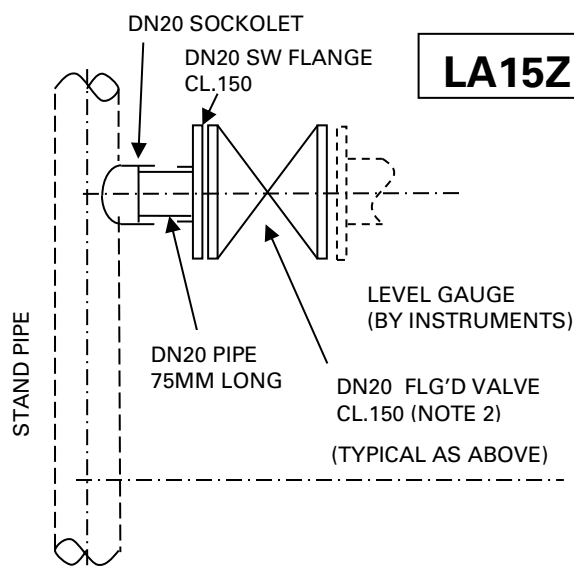



**NOTES:**

1. MINIMUM RATING FOR VALVES & FLANGES IS CLASS 300.
2. BOLTS & GASKETS BY PIPING.
3. GATE/BALL/PLUG VALVE AS PER PIPE CLASS

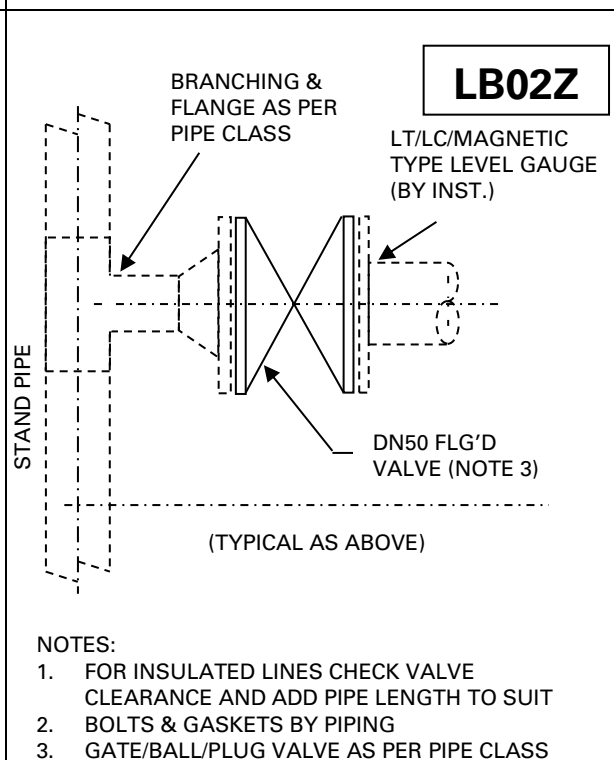
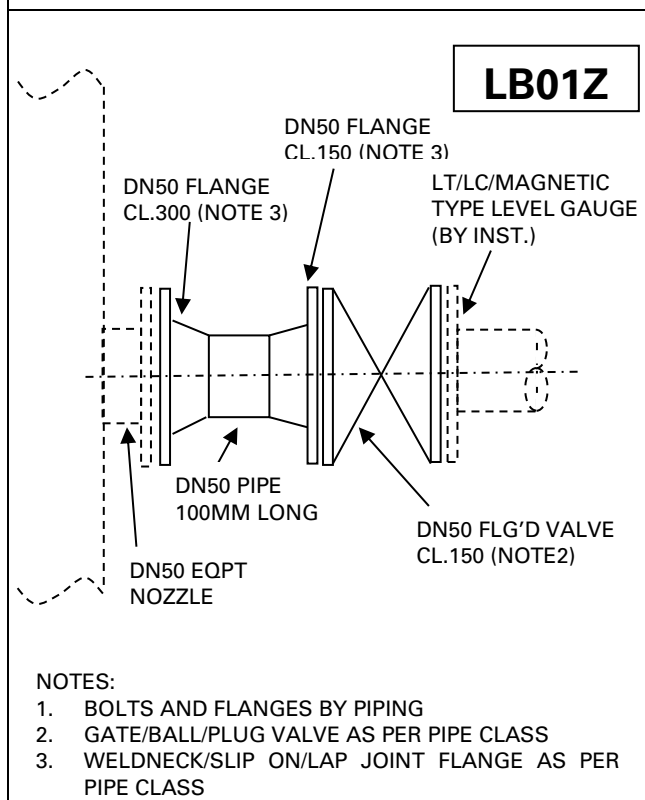
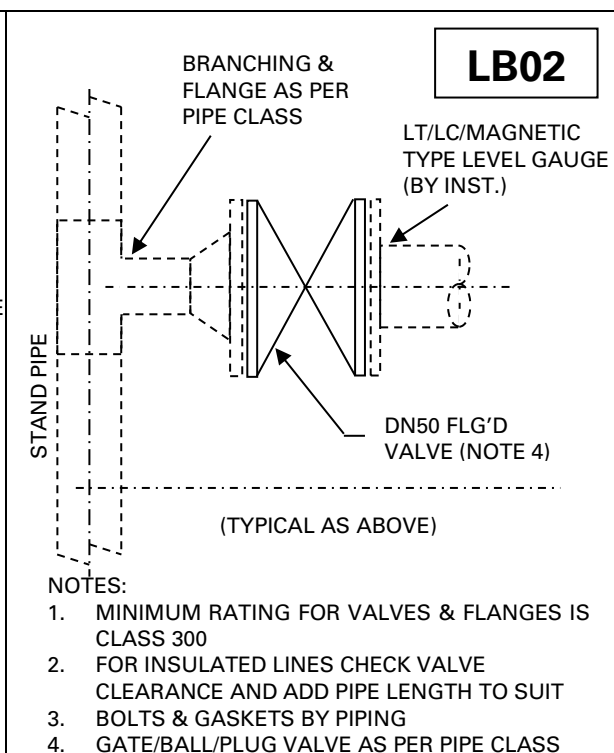
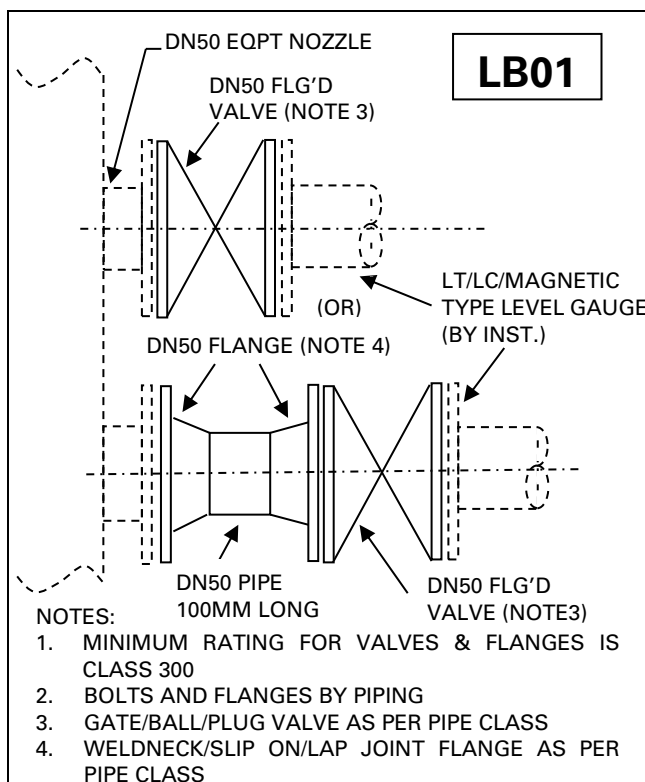

**NOTES:**

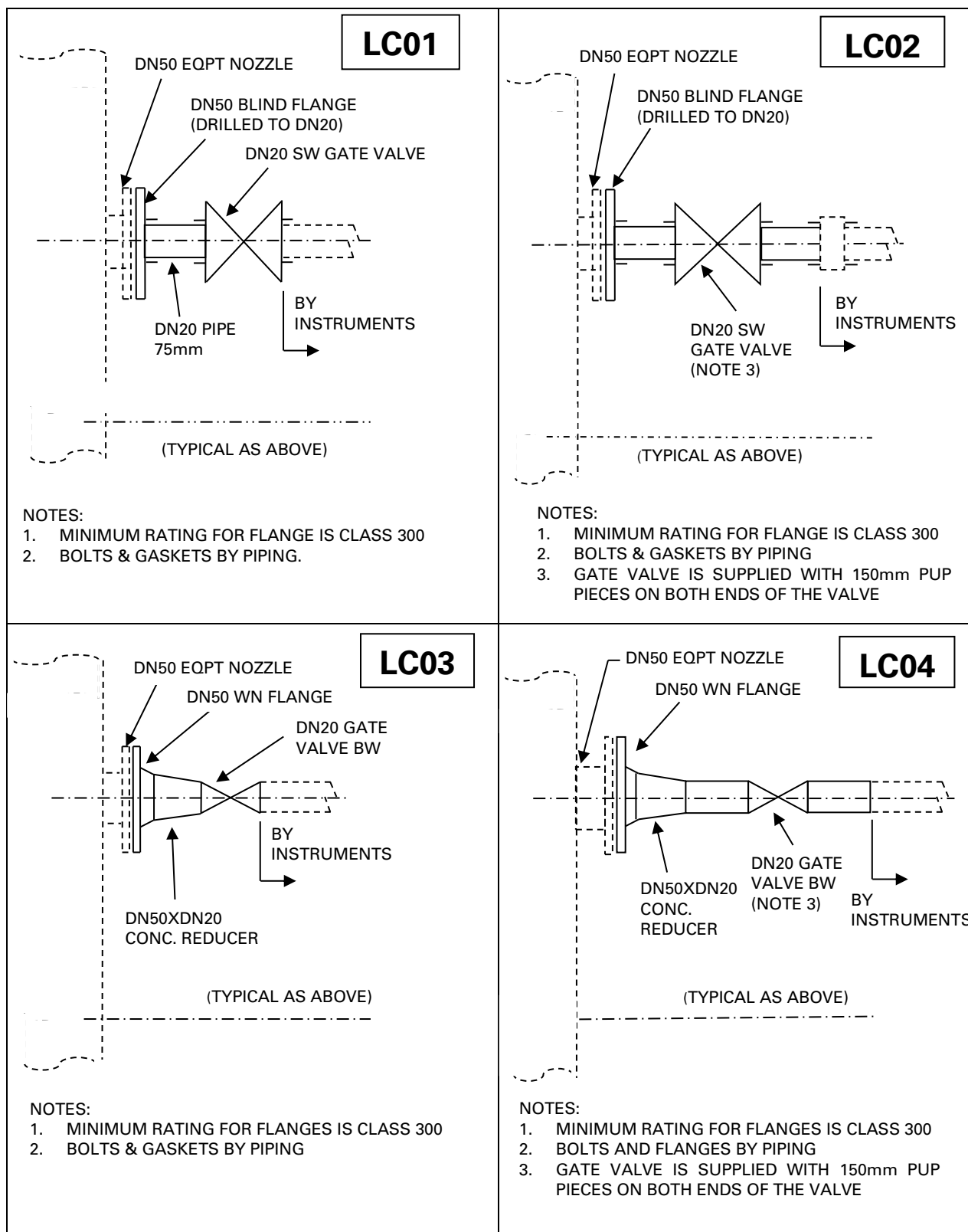
1. MINIMUM RATING FOR VALVES & FLANGES IS CLASS 300.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. BOLTS & GASKETS BY PIPING.
4. GATE/BALL/PLUG VALVE AS PER PIPE CLASS.

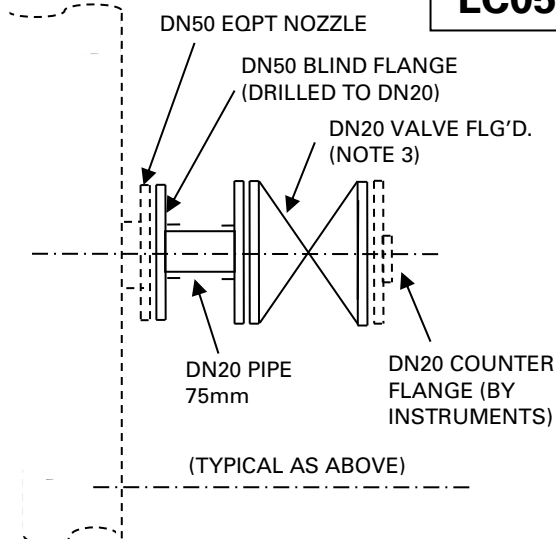

**NOTES:**

1. BOLTS & GASKETS BY PIPING.
2. GATE/BALL/PLUG VALVE AS PER PIPE CLASS

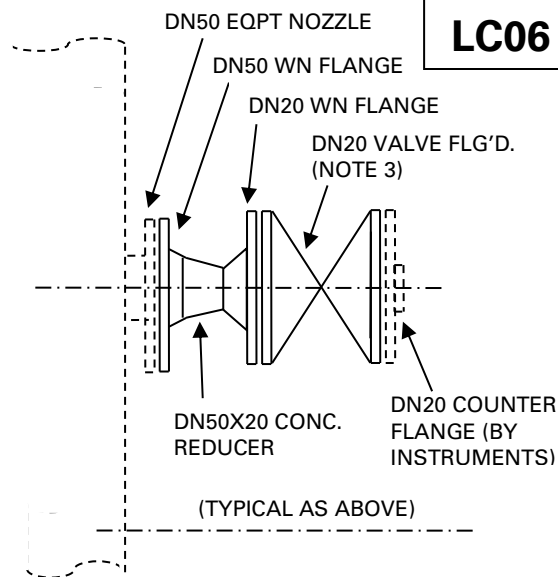
INTENTIONALLY LEFT BLANK



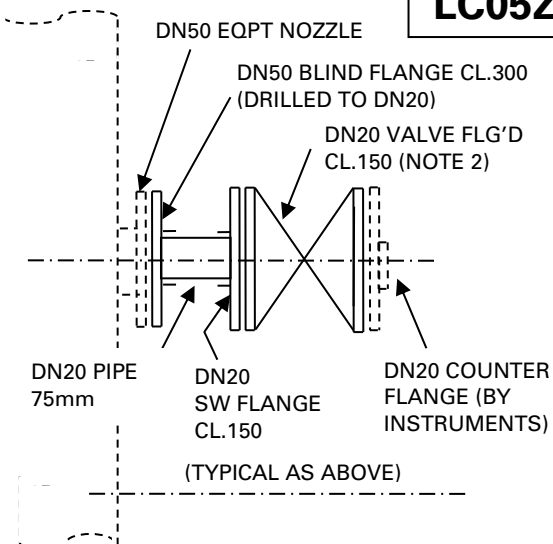


**LC05**

**NOTES:**

1. MINIMUM RATING FOR VALVES & FLANGES IS CLASS 300
2. BOLTS & GASKETS BY PIPING
3. GATE/BALL/PLUG VALVE AS PER PIPE CLASS

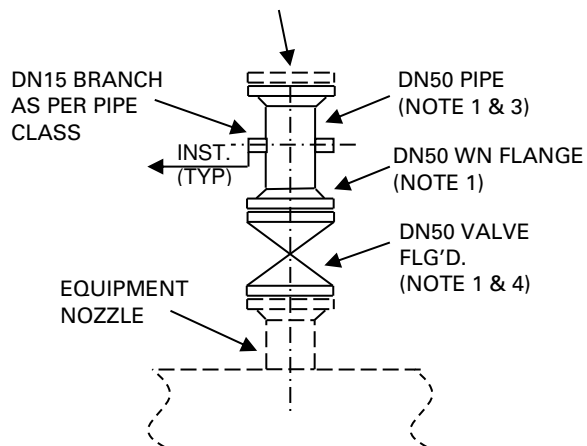
**LC06**

**NOTES:**

1. MINIMUM RATING FOR VALVES & FLANGES IS CLASS 300
2. BOLTS & GASKETS BY PIPING
3. GATE/BALL/PLUG VALVE AS PER PIPE CLASS

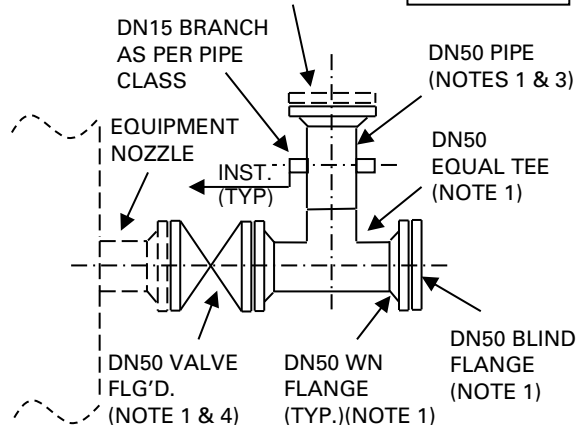
**LC05Z**

**NOTES:**

1. BOLTS & GASKETS BY PIPING
2. GATE/BALL/PLUG VALVE AS PER PIPE CLASS

INTENTIONALLY LEFT BLANK

**DIAPHRAGM MOUNTING BY  
INSTRUMENTS (NOTE 1)**


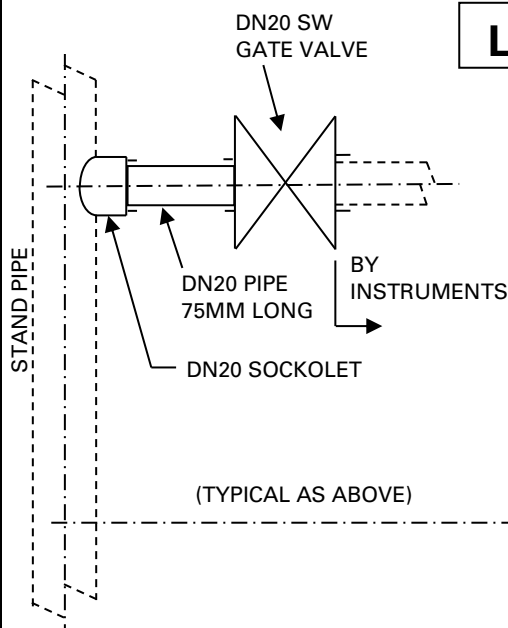
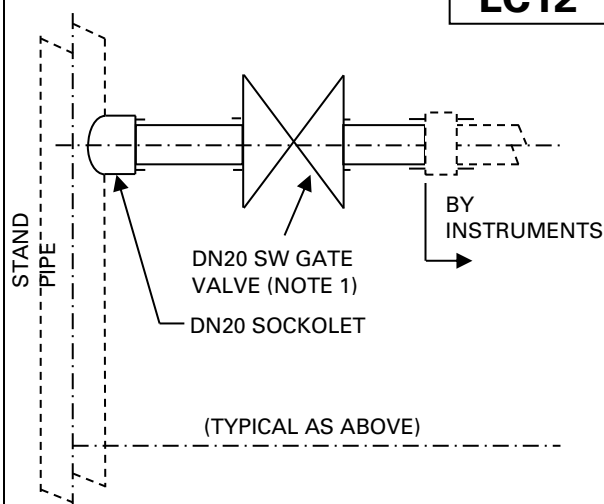
**PREFERRED OPTION  
FOR HORIZONTAL & VERTICAL INSTALLATION**

**DIAPHRAGM MOUNTING  
BY INSTRUMENTS (NOTE 1)**
**LC07**


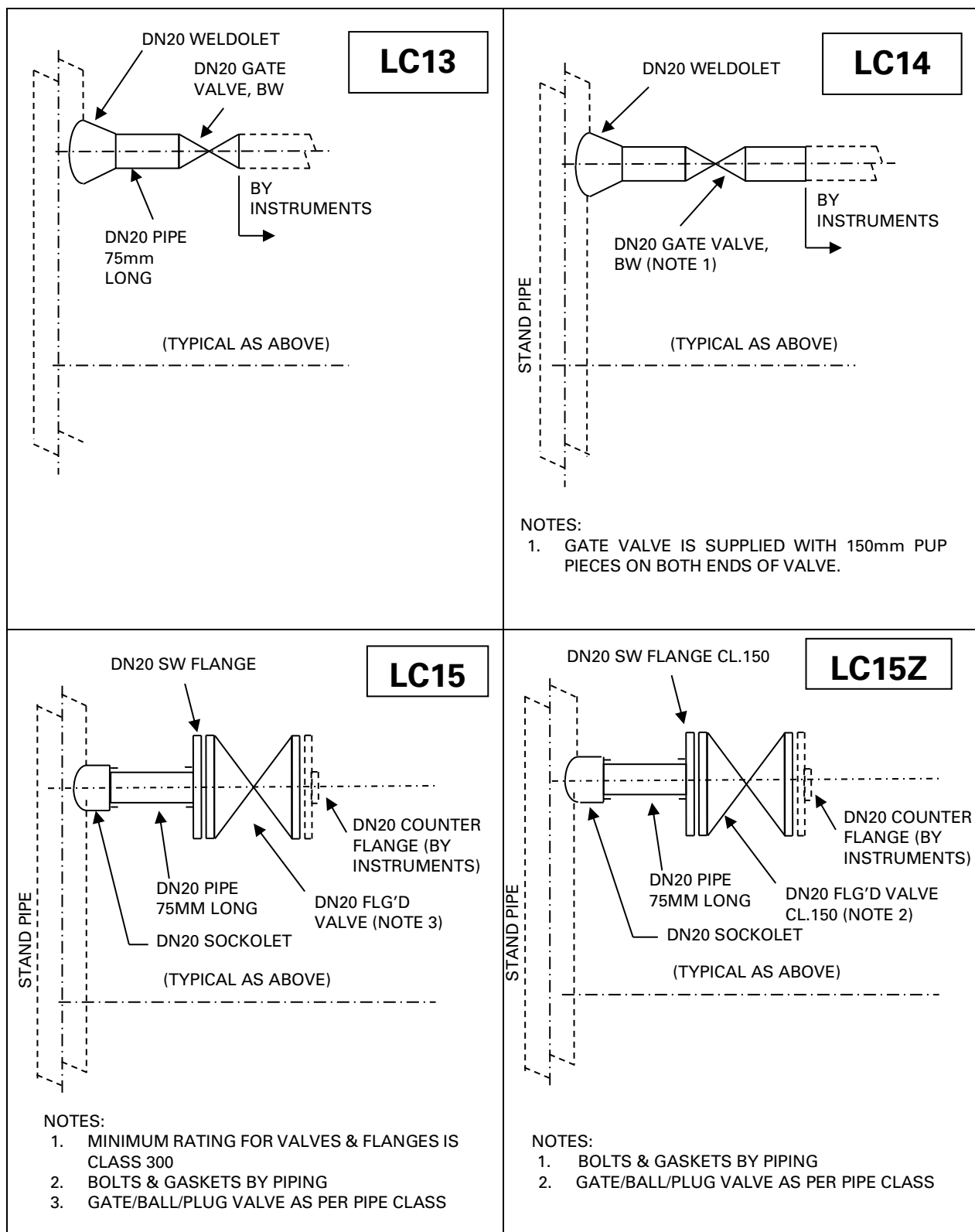
**ALTERNATIVE OPTION  
FOR VERTICAL INSTALLATION ONLY**

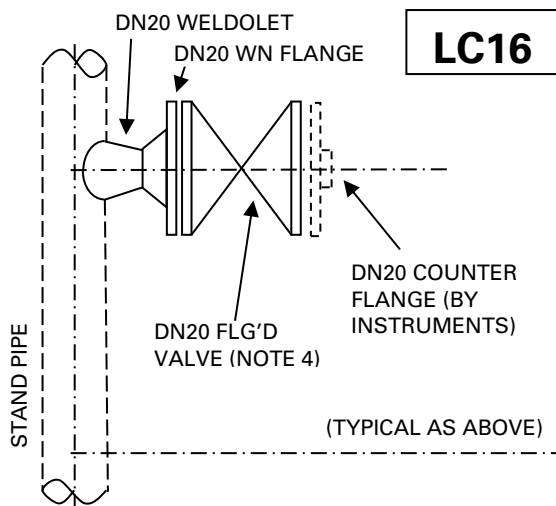
**NOTES:**

1. DIAPHRAGM MOUNTING SIZE IS CONSIDERED AS DN50. THIS SHALL BE CHECKED WITH INSTRUMENTS AND IF ANY CHANGE IN SIZE IS REQUIRED, OTHER PIPING ITEM SIZES SHALL BE CHANGED ACCORDINGLY.
2. BOLTS & GASKETS BY PIPING.
3. PIPE LENGTH TO BE KEPT TO A MINIMUM. (RECOMMENDED MIN. LENGTH IS 100mm)
4. GATE / BALL / PLUG VALVE AS PER PIPE CLASS.
5. MINIMUM RATING FOR FLANGE AND VALVES IS CL.300.

**LC11**

**LC12**


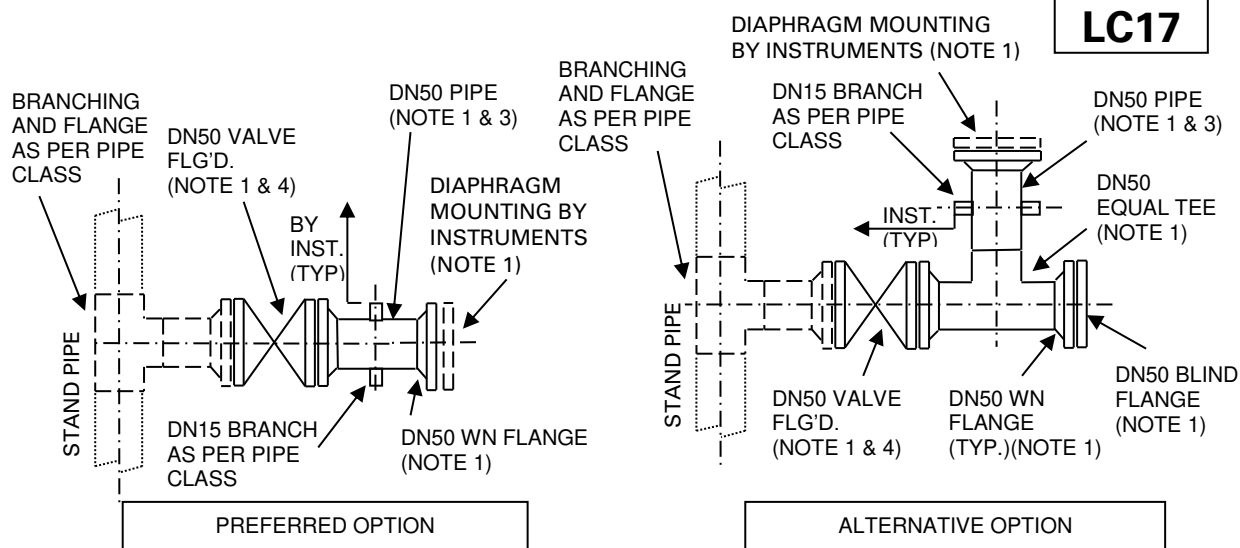
1. GATE VALVE IS SUPPLIED WITH 150mm PUP PIECES ON BOTH ENDS OF THE VALVE




**NOTES:**

1. MINIMUM RATING FOR VALVES & FLANGES IS CLASS 300.
2. FOR INSULATED LINES CHECK VALVE CLEARANCE AND ADD PIPE LENGTH TO SUIT.
3. BOLTS & GASKETS BY PIPING.
4. GATE/BALL/PLUG VALVE AS PER PIPE CLASS.

INTENTIONALLY LEFT BLANK


**NOTES:**

1. DIAPHRAGM MOUNTING SIZE IS CONSIDERED AS DN50. THIS SHALL BE CHECKED WITH INSTRUMENTS AND IF ANY CHANGE IN SIZE IS REQUIRED, OTHER PIPING ITEM SIZES SHALL BE CHANGED ACCORDINGLY.
2. BOLTS & GASKETS BY PIPING.
3. PIPE LENGTH TO BE KEPT TO A MINIMUM. (RECOMMENDED MIN. LENGTH IS 100mm)