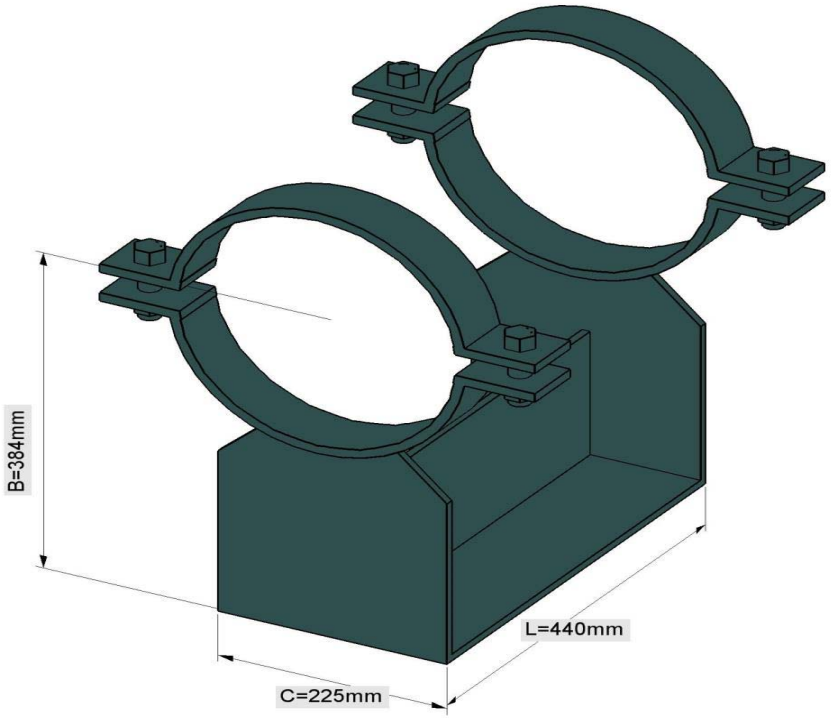
DRAWING



ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	CB-2136-S Clamp Base - Ø 10″ Serie 2 - Carbon Steel B=384mm L=440mm C=225mm	1	37,1
2			
3			
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	37,1
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	37,1

SUPPORT CALCULATION DATA	
Vertical Load	2300 Kg
Hydrotest Load	
Lateral Load	
Axial Load	
Movement: Lateral (+/-)	
Movement: Axial (+/-)	

DEFINITION DATA	
Elevation (Top)	
Elevation (Mid)	
Elevation (Bottom)	
Pipe Size (OD)	10" / DN250 (273 mm)
Pipe Attachment Quality	Carbon Steel
Temperature	350 ºC
Insulation Thickness	
Sliding Plate(s)	
Stainless Steel	
Anti-rotating Trunnion	

LOCATION

Plant Coordinates:

Orientation:

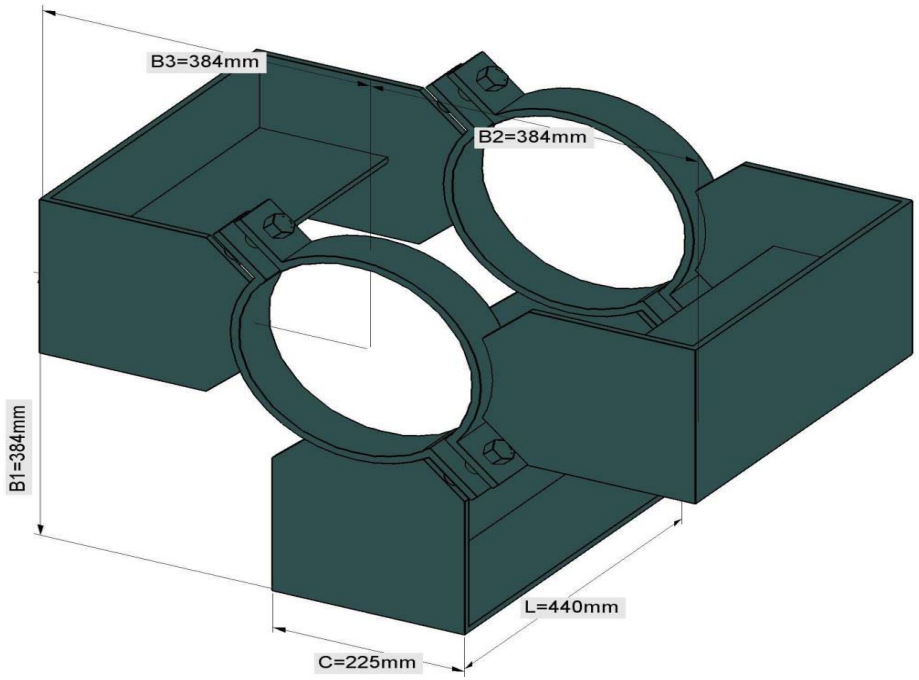
REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	15. 9. 2016				

NOTES

PROJECT NAME:	**SUPPORT TAG:**	**SCALE**
TR KILPILAHTI	**BQ071**	NTS
ENQUIRY NO:	**CLIENT:**	**DWG Nº:**	**SHEET**
700800920	TECNICAS REUNIDAS		1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

DRAWING



ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	CB-2136-T Clamp Base - Ø 10″ Serie 2 - Triple - Alloy Steel 13CrMo4.5 B1=384mm B2=384mm B3=384mm B4=384mm L=440mm C=225mm	1	63,1
2			
3			
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	63,1
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	63,1

SUPPORT CALCULATION DATA	
Vertical Load	2300 Kg
Hydrotest Load	
Lateral Load	2000 Kg
Axial Load	
Movement: Lateral (+/-)	
Movement: Axial (+/-)	

DEFINITION DATA	
Elevation (Top)	
Elevation (Mid)	
Elevation (Bottom)	
Pipe Size (OD)	10" / DN250 (273 mm)
Pipe Attachment Quality	Alloy Steel 13CrMo4.5
Temperature	550 ºC
Insulation Thickness	
Sliding Plate(s)	
Stainless Steel	
Anti-rotating Trunnion	

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	15. 9. 2016				

pihasa pipe hanger solutions

NOTES

PROJECT NAME:	**SUPPORT TAG:**	**SCALE**
TR KILPILAHTI	**BQ105**	NTS
ENQUIRY NO: / **CLIENT:**	**DWG Nº:**	**SHEET**
700800920 / TECNICAS REUNIDAS		1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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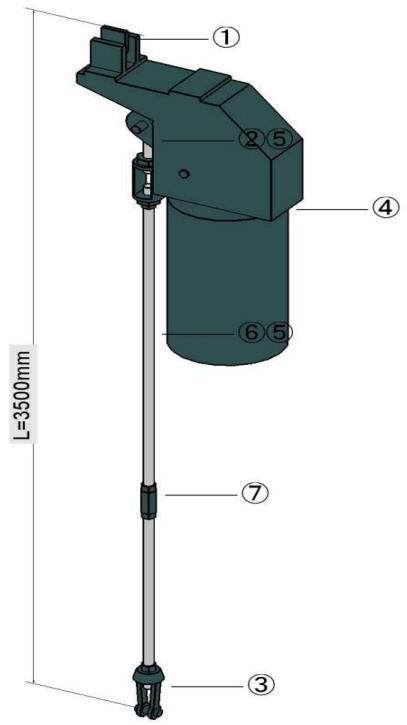

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2105 Welding Lug No. 06	1	2,8
2	2321/22 Right Thread Rod (M36) L=1750 mm	1	14,3
3	2332 Forged Clevis (M36)	1	5,0
4	CSH-C51 Constant Spring Hanger Mod. C51-T Size 37 Load=3204Kg Actual Travel=96mm (up) Total Travel=170mm	1	360,0
5	DIN934 Hexagonal Nut (M36)	4	1,6
6	2321/22 Right Thread Rod (M36) L=1000 mm	1	8,2
7	2330 Rod Coupling (M36)	1	1,7
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	393,6
QTY OF SUPPORTS	2
TOTAL WEIGHT (Kg)	787,2

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	3204 Kg
Preset Load (Cold Load)	3204 Kg
Hydrotest Load	
Movement: Vertical (+/-)	96 mm
Movement: Lateral (+/-)	
Movement: Axial (+/-)	
Min. Travel Reserve Up	
Min. Travel Reserve Down	
Max. Allowable Variability	25%
Variability	0%
Spring Rigidity (K)	0 Kg/mm

DEFINITION DATA	
Elevation (Top)	3500 mm
Elevation (Mid)	
Elevation (Bottom)	
Pipe Size (OD)	12" / DN300 (324 mm)
Pipe Attachment Quality	Carbon Steel
Temperature	20 ºC
Insulation Thickness	
Spring Load Calculations	Support load only

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
0	20. 10. 2016	FOR QUOTATION	MGF	MGF	DCR

NOTES

SPS-139

PROJECT NAME: AMEC FW CHILE 1081/16

SUPPORT TAG: CSH3-05

SCALE: NTS

ENQUIRY NO:

CLIENT: AMEC FW CHILE / ENAP

DWG Nº: 1081_001

SHEET: 1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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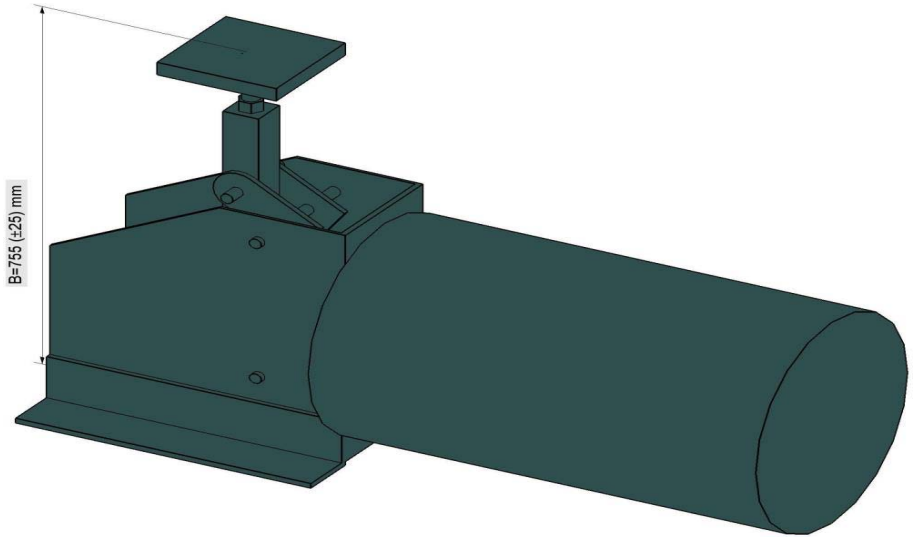

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	CSH-C54 Constant Spring Hanger Mod. C54 Size 37 Load=6500Kg Actual Travel=60mm (up) Total Travel=90mm	1	373,0
2			
3			
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	373,0
QTY OF SUPPORTS	4
TOTAL WEIGHT (Kg)	1492,0

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	6500 Kg
Preset Load (Cold Load)	
Hydrotest Load	12000 Kg
Movement: Vertical (+/-)	60 mm
Movement: Lateral (+/-)	0 mm
Movement: Axial (+/-)	0 mm
Min. Travel Reserve Up	
Min. Travel Reserve Down	
Max. Allowable Variability	25%
Variability	0%
Spring Rigidity (K)	0 Kg/mm

DEFINITION DATA	
Elevation (Top)	
Elevation (Mid)	
Elevation (Bottom)	
Pipe Size (OD)	24" / DN600 (610 mm)
Pipe Attachment Quality	Carbon Steel
Temperature	300 ºC
Insulation Thickness	
Spring Load Calculations	Support load + accesories

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	15. 9. 2016				

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NOTES

PROJECT NAME:		**SUPPORT TAG:**	**SCALE**
TR KILPILAHTI		**BQ051**	NTS
ENQUIRY NO:	**CLIENT:**	**DWG Nº:**	**SHEET**
700800920	TECNICAS REUNIDAS		1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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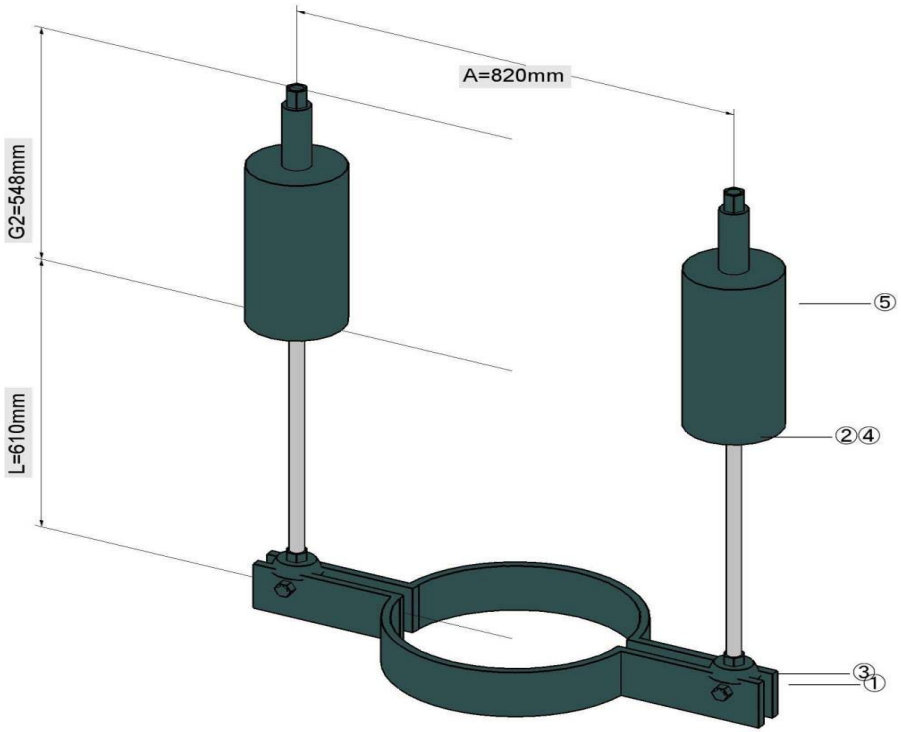

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2240 Riser Clamp - Type 1 - Size 28 - Ø 16″ - Carbon Steel A=820mm	1	49,2
2	2321/22 Right Thread Rod (M24) L=1150 mm	2	7,0
3	2333 Forged Eye Nut (M24)	2	2,0
4	DIN934 Hexagonal Nut (M24)	6	0,6
5	VSH D Variable Spring CV-13-D HL=9401N CL=10264N Travel=8mm (up)	2	54,0
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	112,8
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	112,8

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	18802 N
Preset Load (Cold Load)	20528 N
Hydrotest Load	
Movement: Vertical (+/-)	8 mm
Movement: Lateral (+/-)	7 mm
Movement: Axial (+/-)	
Min. Travel Reserve Up	
Min. Travel Reserve Down	
Max. Allowable Variability	25%
Variability	9,2%
Spring Rigidity (K)	107,9 N/mm

DEFINITION DATA	
Elevation (Top)	610 mm
Elevation (Mid)	
Elevation (Bottom)	0 mm
Pipe Size (OD)	16" / DN400 (406 mm)
Pipe Attachment Quality	Carbon Steel
Temperature	150 ºC
Insulation Thickness	0 mm
Spring Load Calculations	Support load only
Distance Btwn Axis (A)	820 mm

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	6. 2. 2017				

MACROFLEX SLOVAKIA

NOTES

PROJECT NAME:

SUPPORT TAG:

NODE 60

SCALE

NTS

ENQUIRY NO:

029/17

CLIENT:

MACROFLEX Slovakia

DWG Nº:

SHEET

1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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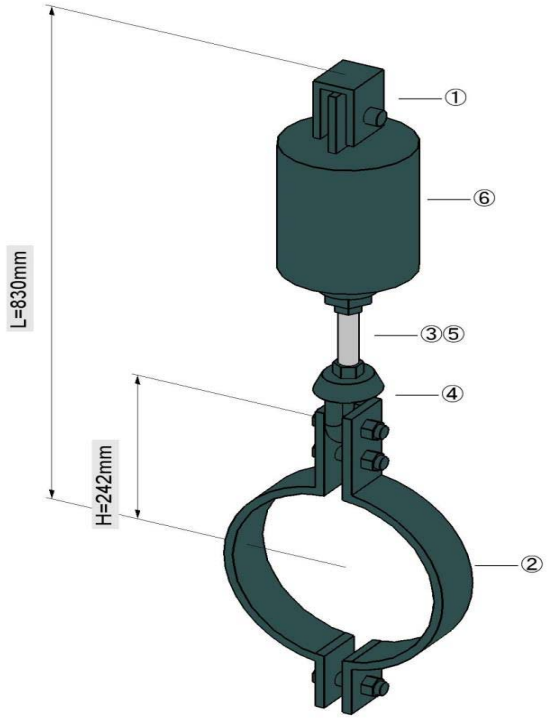

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2100 Welded Beam Attachment No. 04	1	1,5
2	2229 Three-Bolt Clamp - Light Series Ø 10″ - Carbon Steel	1	9,5
3	2321/22 Right Thread Rod (M24) L=250 mm	1	0,8
4	2333 Forged Eye Nut (M24)	1	1,0
5	DIN934 Hexagonal Nut (M24)	2	0,2
6	VSH B Variable Spring CVC-12-B HL=8153N CL=7850N Travel=-1,875mm (down)	1	19,0
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	32,0
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	32,0

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	8153 N
Preset Load (Cold Load)	7850 N
Hydrotest Load	
Movement: Vertical (+/-)	-1,875 mm
Movement: Lateral (+/-)	2,512 mm
Movement: Axial (+/-)	
Min. Travel Reserve Up	
Min. Travel Reserve Down	
Max. Allowable Variability	25%
Variability	3,7%
Spring Rigidity (K)	161,8 N/mm

DEFINITION DATA	
Elevation (Top)	830 mm
Elevation (Mid)	
Elevation (Bottom)	0 mm
Pipe Size (OD)	10" / DN250 (273 mm)
Pipe Attachment Quality	Carbon Steel
Temperature	180 ºC
Insulation Thickness	40 mm
Spring Load Calculations	Support load only

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	24. 2. 2017				

pihasa pipe hanger solutions — MACROFLEX SLOVAKIA

NOTES

PROJECT NAME:

SUPPORT TAG:

NODE 163/63

SCALE

NTS

ENQUIRY NO:

CLIENT:

DWG Nº:

SHEET

1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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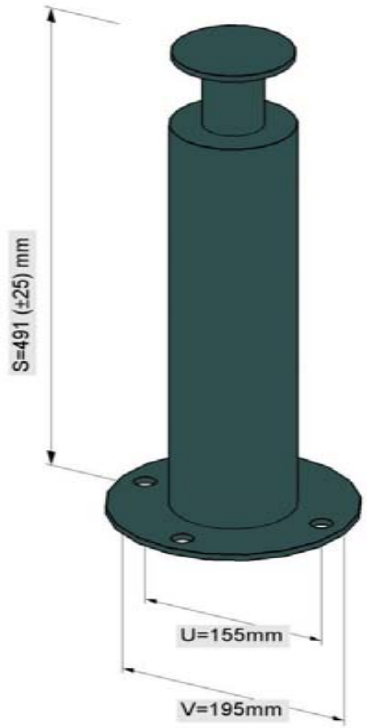

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	VSH F Variable Spring CVL-2-F HL=479N CL=596N Travel=47,533mm (up)	1	9,0
2			
3			
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	9,0
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	9,0

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	479 N
Preset Load (Cold Load)	596 N
Hydrotest Load	
Movement: Vertical (+/-)	47,533 mm
Movement: Lateral (+/-)	
Movement: Axial (+/-)	
Min. Travel Reserve Up	
Min. Travel Reserve Down	
Max. Allowable Variability	25%
Variability	24,9%
Spring Rigidity (K)	2,5 N/mm

DEFINITION DATA	
Elevation (Top)	
Elevation (Mid)	
Elevation (Bottom)	
Pipe Size (OD)	
Pipe Attachment Quality	
Temperature	
Insulation Thickness	
Spring Load Calculations	Support load only

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	5. 9. 2016				

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NOTES

PROJECT NAME:	**SUPPORT TAG:**	**SCALE**
ABENGOA KHI 0903/16	**AC1HAN75BR004-node3490**	NTS
ENQUIRY NO: / **CLIENT:**	**DWG Nº:**	**SHEET**
E-MAIL 05/09/16 / ABENGOA		1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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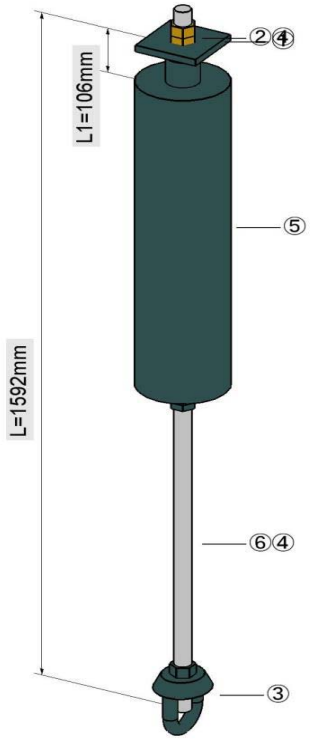

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2110 Square Support Plate (M30)	1	1,7
2	2321/22 Right Thread Rod (M30) L=300 mm	1	1,4
3	2333 Forged Eye Nut (M30)	1	2,0
4	DIN934 Hexagonal Nut (M30)	5	1,0
5	VSH A Variable Spring CVL-14-A HL=13800N CL=15791N Travel=28mm (up)	1	50,0
6	2321/22 Right Thread Rod (M30) L=600 mm	1	2,9
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	59,0
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	59,0

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	13800 N
Preset Load (Cold Load)	15791 N
Hydrotest Load	
Movement: Vertical (+/-)	28 mm
Movement: Lateral (+/-)	
Movement: Axial (+/-)	
Min. Travel Reserve Up	
Min. Travel Reserve Down	
Max. Allowable Variability	25%
Variability	14,4%
Spring Rigidity (K)	71,1 N/mm

DEFINITION DATA	
Elevation (Top)	1592 mm
Elevation (Mid)	
Elevation (Bottom)	
Pipe Size (OD)	
Pipe Attachment Quality	
Temperature	
Insulation Thickness	
Spring Load Calculations	Support load only

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	29. 6. 2016				

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pipe hanger solutions

NOTES

PROJECT NAME:

SUPPORT TAG: PSS-1013

SCALE NTS

ENQUIRY NO:

CLIENT:

DWG Nº:

SHEET 1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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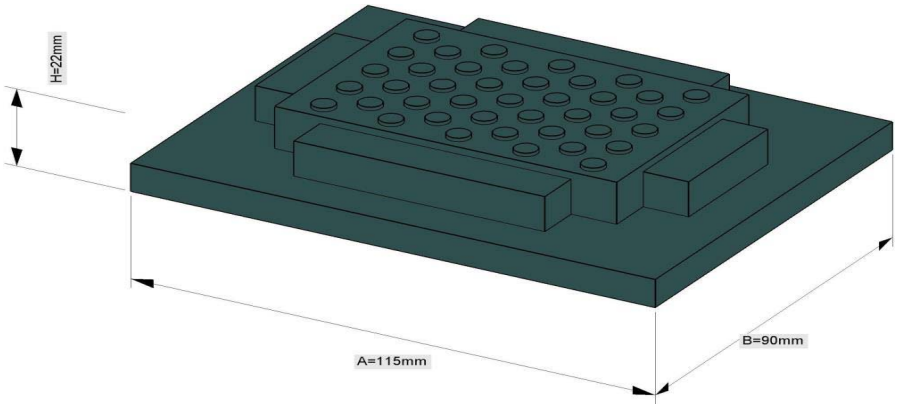

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2139 Graphite-Bronze Sliding Plate No. 02 (115x90/75x50/H=22)	1	1,5
2			
3			
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	1,5
QTY OF SUPPORTS	30
TOTAL WEIGHT (Kg)	45,0

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	5500 Kg
Preset Load (Cold Load)	N/A
Hydrotest Load	
Movement: Lateral (+/-)	
Movement: Axial (+/-)	

DEFINITION DATA	
Elevation (Top)	N/A
Elevation (Mid)	N/A
Elevation (Bottom)	
Pipe Size (OD)	
Pipe Attachment Quality	Carbon Steel
Temperature	
Insulation Thickness	

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	15. 9. 2016				

NOTES

[1] Installation dimensions are smaller than needed.

PROJECT NAME:	SUPPORT TAG:	SCALE
TR KILPILAHTI	BQ069	NTS
ENQUIRY NO: / **CLIENT:**	**DWG Nº:**	**SHEET**
700800920 / TECNICAS REUNIDAS		1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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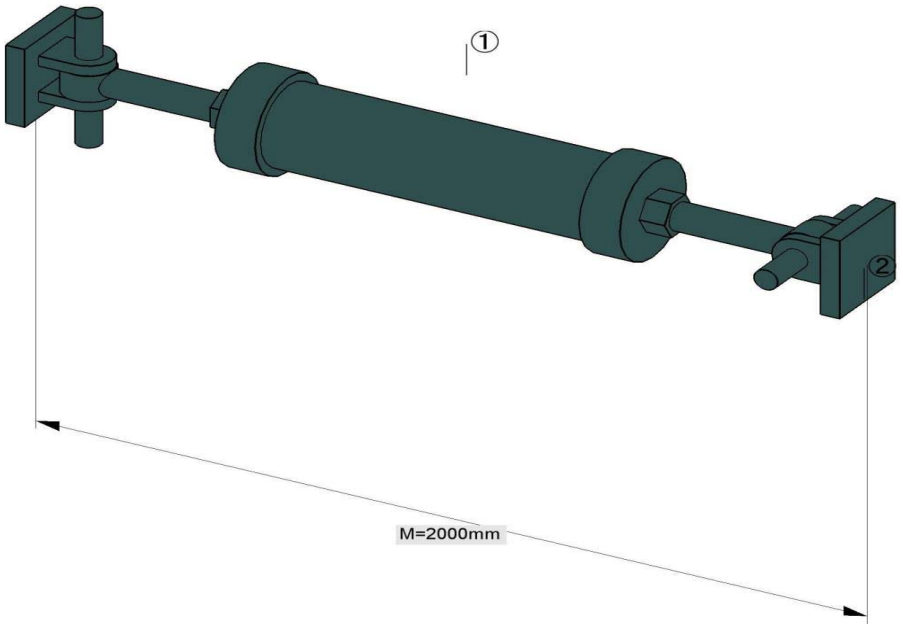

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2400 Sway Strut No. 0 M=2000mm C=1906mm	1	14,0
2	2400 OPT. 2 Beam Attachment for Sway Strut No. 0	2	2,8
3			
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	16,8
QTY OF SUPPORTS	2
TOTAL WEIGHT (Kg)	33,6

SUPPORT CALCULATION DATA	
Operating Load (Hot Load)	800 Kg
Preset Load (Cold Load)	N/A
Hydrotest Load	

DEFINITION DATA	
Elevation (Top)	2000 mm
Elevation (Mid)	N/A
Elevation (Bottom)	
Pipe Size (OD)	
Pipe Attachment Quality	Carbon Steel
Temperature	
Insulation Thickness	

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	15. 9. 2016				

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NOTES

PROJECT NAME:	**SUPPORT TAG:**	**SCALE**
TR KILPILAHTI	**BQ062**	NTS
ENQUIRY NO: / 700800920	**CLIENT:** / TECNICAS REUNIDAS	**DWG Nº:**	**SHEET** / 1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010

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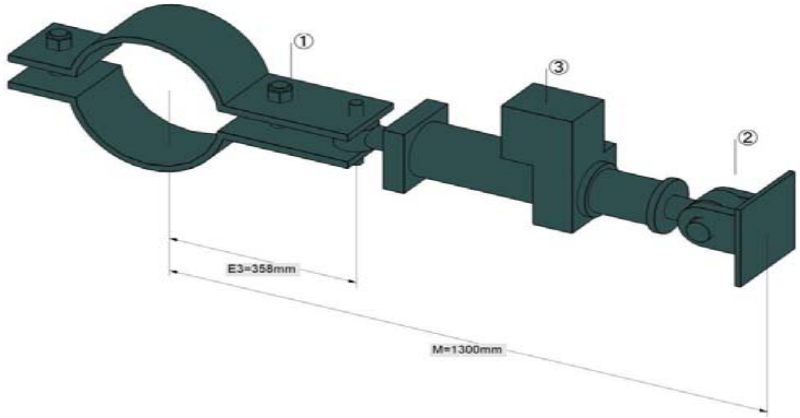

ITM	MATERIAL LIST	QTY	TOTAL WEIGHT (*)
1	2400 OPT. 3 Dynamic Clamp Opt. 3 for Hydraulic Snubber Ø 10″ - Alloy Steel 16Mo3 E3=358mm	1	51,0
2	BAHS Beam Attachment for Hydraulic Snubber Size 4”	1	15,0
3	HS Hydraulic Snubber Mod. 201A Size 4” Stroke 5" M=1300mm Extension=43mm Compression=0mm L2=852mm	1	59,0
4			
5			
6			
7			
8			
9			
10			

UNIT WEIGHT PER SUPPORT (Kg)	125,0
QTY OF SUPPORTS	1
TOTAL WEIGHT (Kg)	125,0

SUPPORT CALCULATION DATA	
Instant Load	111000 N
Preset Load (Cold Load)	N/A
Hydrotest Load	N/A
Travel Extension	43 mm
Travel Compression	0 mm
Movement: Axial (+/-)	32 mm
Min. Travel Reserve Ext.	
Min. Travel Reserve Comp.	

DEFINITION DATA	
Installation Length	1300 mm
Elevation (Mid)	N/A
Elevation (Bottom)	N/A
Pipe Size (OD)	10" / DN250 (273 mm)
Pipe Attachment Quality	Alloy Steel 16Mo3
Temperature	400 ºC
Insulation Thickness	140 mm

LOCATION

Plant Coordinates:

Orientation:

REV	DATE	ISSUED FOR	DRW.	CHK.	APPR.
	22. 4. 2016				

pihasa pipe hanger solutions

NOTES

PROJECT NAME:

SUPPORT TAG: HSA-016

SCALE: NTS

ENQUIRY NO: 13101D_PI-RQ-PX700-01

CLIENT: SK

DWG Nº:

SHEET: 1 of 1

(*) WEIGHT DATA ARE APPROXIMATE AND FOR ESTIMATION PURPOSES ONLY.
CURRENT RELEASE: 2.9.6221.18898 / DATABASE RELEASE: 2016.12.12.172010