

Arm.Superior: 2Ø12.5(<<2.45+2.20=4.65) ----- 2Ø10(1.25>>)

Arm.Montagem: 2Ø5(2.55)

Arm.Inferior: 2Ø10(<<4.65+5.70=10.35)

Estribos: 39x1Ø5c/0.14(5.34)

Tramo nº 3 (*V 2-V 2*) (C= 5.50) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.063 cm.
(C/8666)

Arm.sup: 1.2 ----- 1.2 1.2 1.2(0.00)
1.2(5.22)

Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(1.06) 1.2(2.75)

Moment.: -0.6 0.3 0.7 0.9 0.6 -0.1 -1.3 -0.6(0.00) 0.4(1.06) 0.9(2.75)
-1.3(5.50)

Cortant.: -1.0 0.7 0.4 -0.1 -0.5 -1.0 -1.5 1.2(x= 0.00)
-1.5(x= 5.50)

Torsores: 0.01 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.01(x= 0.00)
0.00(x= 5.50) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.25+1.25=2.50) ----- 2Ø10(1.35>>)

Arm.Montagem: 2Ø5(3.40)

Arm.Inferior: 2Ø10(5.60>>)

Estribos: 38x1Ø5c/0.14(5.30)

Tramo nº 4 (*V 2-V 3*) (C= 4.50) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= -0.007 cm.
(C/-61929)

Arm.sup: 1.2 1.2 1.2 ----- 1.2 1.2 1.2 1.2(0.00)
1.2(4.18)

Arm.inf: ----- 1.2 1.2 1.2 ----- 1.2(2.25)

Moment.: -1.3 -0.5 -0.1 0.1 -0.0 -0.4 -1.2 -1.3(x= 0.00) 0.1(x=
2.25) -1.2(x= 4.50)

Cortant.: -1.5 0.8 0.4 0.0 -0.4 -0.8 -1.2 1.2(x= 0.00)
-1.5(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 4.50) Lim.: 0.54

Arm.Superior: 2Ø10(<<4.50>>) -----

Arm.Inferior: 2Ø10(<<5.60+4.60=10.20)

Estribos: 31x1Ø5c/0.14(4.30)

Tramo nº 5 (*V 3-V 3*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.068 cm.
(C/7319)

Arm.sup: 1.2 1.2 ----- 1.2(0.00)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.86)
1.2(4.29)

Moment.: -1.2 -0.1 0.7 1.1 1.1 0.7 -0.0 -1.2(0.00) 1.1(2.86)
0.7(4.17) -0.0(5.00)

Cortant.: -1.2 1.1 0.7 0.2 -0.2 -0.7 -1.1 1.6(x= 0.00)
-1.2(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø10(<<5.85+1.25=7.10) ----- 2Ø6.3(4.07+0.08D=4.15)

Arm.Inferior: 2Ø10(5.23+0.12D=5.35)

Estribos: 35x1Ø5c/0.14(4.80)

V 2 --- Grupo: 1

Tramo nº 1 (*V 2- *) (C= 1.65) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= -0.004 cm.
(C/-37159)

Arm.sup: ----- 1.2 1.2 1.2 1.2 1.2 1.4 1.2(0.47)
1.2(1.53)

Arm.inf: 0.5 1.2 1.2 1.2 ----- 1.2(0.12) 1.2(0.35)

Moment.: 0.6 0.7 0.5 -0.4 -0.8 -1.3 -2.0 -0.0(0.00) 0.7(0.12) 0.6(0.35)
-2.0(1.65)

Cortant.: 0.4 -0.2 -0.7 -1.2 -1.7 -2.2 -2.5 0.4(x= 0.00)
-2.5(x= 1.65)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 1.65) Lim.: 0.54

Arm.Montagem: 2Ø10(0.12D+1.72>>>)

Arm.Inferior: 2Ø10(0.12D+1.72>>>)

Estribos: 11x1Ø5c/0.14(1.45)

Tramo nº 2 (* -V 2*) (C= 1.65) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= -0.004 cm.
(C/-37110)

Arm.sup: 1.4 1.2 1.2 1.2 1.2 1.2 ----- 1.4(0.00)
1.2(1.18)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2(1.29)
 1.2(1.53)

Moment.: -2.0 -1.3 -0.8 -0.4 0.5 0.7 0.6 -2.0(0.00) 0.6(1.29)
 0.7(1.53) -0.0(1.65)

Cortant.: -2.5 2.2 1.7 1.2 0.7 0.2 -0.3 2.5(x= 0.00)
 -2.5(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
 0.00(x= 1.65) Lim.: 0.54

Arm.Montagem: 2Ø10(<<1.84+1.71+0.12D=3.67)

Arm.Inferior: 2Ø10(<<1.84+1.71+0.12D=3.67)

Estribos: 11x1Ø5c/0.14(1.45)

V 3 --- Grupo: 1

Tramo nº 1 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.137 cm.
 (C/3661)

Arm.sup: 0.2 ----- 1.2 3.2 0.2(0.17)
 3.8(4.77)

Arm.inf: ----- 1.2 1.8 1.9 1.2 ----- 1.2(0.98) 2.0(2.14)

Moment.: -0.3 1.3 2.6 2.6 1.4 -1.3 -6.1 -0.4(0.11) 1.7(0.98) 2.8(2.14)
 -6.4(4.89)

Cortant.: ----- 2.3 0.8 -0.7 -2.2 -3.7 ----- 3.0(x= 0.40)
 -15.4(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.12(x=
 4.60) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+3.98=4.10) ----- 3Ø12.5(1.70>>), 1Ø10(1.15>>)

Arm.Inferior: 2Ø16(0.19D+5.66=5.85)

Estribos: 24x1Ø10c/0.17(3.95), 6x1Ø10c/0.14(0.80)

Tramo nº 2 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.162 cm.
 (C/3080)

Arm.sup: 3.2 1.2 ----- 1.3 3.5 3.1(0.06)
 3.8(4.77)

Arm.inf: ----- 1.2 1.9 3.2 3.5 ----- 3.5(3.14)
 1.2(4.06)

Moment.: -6.1 -1.5 2.7 4.4 4.9 -1.8 -6.7 -6.1(0.00) 4.9(3.14)
 0.2(4.06) -6.7(5.00)

Cortant.: ----- 4.3 2.8 1.3 -0.5 -7.3 ----- 5.1(x= 0.40)

-8.1(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 3Ø12.5(<<1.70+1.60=3.30), 1Ø10(<<1.15+1.20=2.35) ----- 3Ø12.5(1.60>>), 1Ø10(1.05>>)

Arm.Montagem: 2Ø6.3(2.30)

Arm.Inferior: 2Ø12.5(5.40), 1Ø12.5(3.15)

Estribos: 21x1Ø6.3c/0.17(3.44), 9x1Ø6.3c/0.14(1.26)

Tramo nº 3 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.162 cm. (C/3089)

Arm.sup: 3.5 1.3 ----- 1.2 2.0 3.8(0.23)
2.5(4.66)

Arm.inf: ----- 3.4 3.1 1.9 1.2 ----- 1.2(0.93) 3.4(1.86)

Moment.: -6.7 -1.8 4.8 4.4 2.7 -1.5 -3.8 -6.7(0.00) 0.2(0.93) 4.8(1.86)
-4.0(4.83)

Cortant.: ----- 7.3 0.3 -1.3 -2.7 -4.2 ----- 8.1(x= 0.40)
-5.0(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 3Ø12.5(<<1.60+1.60=3.20), 1Ø10(<<1.05+1.20=2.25) ----- 2Ø12.5(1.60>>), 1Ø10(1.10>>)

Arm.Montagem: 2Ø6.3(2.25)

Arm.Inferior: 2Ø12.5(5.30), 1Ø12.5(3.15)

Estribos: 9x1Ø6.3c/0.14(1.26), 21x1Ø6.3c/0.17(3.44)

Tramo nº 4 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.070 cm. (C/7159)

Arm.sup: 2.0 1.2 ----- 1.2 1.0 2.0(0.06)
1.6(4.66)

Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.7(2.50)

Moment.: -3.8 -0.8 1.7 2.3 1.7 -0.8 -1.9 -3.8(x= 0.00) 2.3(x= 2.50)
-2.5(x= 4.71)

Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 4.1(x= 0.40)
-3.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.55=3.15), 1Ø10(<<1.10+1.20=2.30) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø12.5(5.30), 1Ø10(3.00)

Estribos: 34x1Ø5c/0.14(4.70)

Tramo nº 5 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.356 cm.
(C/1403)

Arm.sup: 1.0 ----- 0.2 0.9(0.06)
0.3(4.83)

Arm.inf: ----- 1.2 2.4 2.8 2.4 1.2 ----- 1.2(0.70) 2.8(2.50)
1.2(4.30)

Moment.: -1.9 1.4 3.3 4.0 3.3 1.4 -0.4 -1.9(0.00) 1.4(0.83) 4.0(2.50)
1.4(4.17) -0.4(4.89)

Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 3.8(x= 0.40)
-3.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.10=2.65) ----- 2Ø6.3(4.62+0.08D=4.70)

Arm.Inferior: 2Ø10(5.53+0.12D=5.65), 1Ø12.5(3.45)

Estribos: 34x1Ø5c/0.14(4.75)

V 4 --- Grupo: 1

Tramo nº 1 (*V 1- *) (C= 5.54) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.043 cm.
(C/12780)

Arm.sup: ----- 1.2 2.0
1.7(5.42)

Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(0.83) 1.2(1.94)

Moment.: -0.0 0.6 0.8 0.7 0.2 -0.6 -2.8 -0.0(0.00) 0.6(0.92) 0.8(1.94)
-2.8(5.54)

Cortant.: 0.9 0.4 0.1 -0.3 -0.7 -1.6 -3.1 0.9(x= 0.00)
-3.1(x= 5.54)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.54) Lim.: 0.54

Arm.Superior: ----- 2Ø12.5(2.00>>)

Arm.Montagem: 2Ø6.3(0.09D+3.86=3.95)

Arm.Inferior: 2Ø10(0.12D+5.60>>)

Estribos: 39x1Ø5c/0.14(5.34)

Tramo nº 2 (* -V 2*) (C= 5.50) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.043 cm.
(C/12875)

Arm.sup:	2.0	1.2	-----	-----	-----	-----	-----	2.0(0.00)	
Arm.inf:	-----	-----	1.2	1.2	1.2	1.2	-----		1.2(3.57)
Moment.:	-2.8	-0.6	0.2	0.7	0.8	0.6	0.0	-2.8(0.00)	0.8(3.57)
	0.6(4.58)	0.0(5.50)							
Cortant.:	-3.1	1.6	0.7	0.3	-0.1	-0.4	-0.8		3.1(x= 0.00)
	-3.1(x= 0.00)								
Torsores:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 Extr. apoio: 0.00(x= 0.00)
	0.00(x= 5.50)	Lim.: 0.54							

Arm.Superior: 2Ø12.5(<<2.00+1.85=3.85) ----- 2Ø6.3(4.02+0.08D=4.10)

Arm.Inferior: 2Ø10(<<5.72+5.57+0.12D=11.41)

Estribos: 38x1Ø5c/0.14(5.30)

V 5 --- Grupo: 1

Tramo nº 1 (*V 1-P40*) (C= 0.93) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.012 cm.
(C/7843)

Arm.sup:	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2(0.28)
1.2(0.87)									
Arm.inf:	-----	-----	-----	-----	-----	-----	-----	0.0(0.06)	
Moment.:	0.0	-0.0	-0.2	-0.3	-0.6	-1.1	-1.8	0.0(0.00)	0.0(0.06) -0.0(0.19)
	-1.8(0.93)								
Cortant.:	0.0	-0.8	-0.9	-1.0	-----	-----	-----		0.0(x= 0.00)
	-1.0(x= 0.53)								
Torsores:	0.00	0.00	0.00	0.00	-----	-----	-----	0.00(x= 0.10)	0.00(x= 0.53) Lim.: 0.54

Arm.Superior: 2Ø12.5(0.15D+0.90>>) -----

Arm.Inferior: 2Ø12.5(0.23D+0.90>>)

Estribos: 6x1Ø5c/0.14(0.80)

Tramo nº 2 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.075 cm.

(C/6683)

Arm.sup: 2.2(4.77)	1.2	1.2	-----	-----	-----	1.2	1.9	1.6(0.34)
Arm.inf: 1.2(4.18)	-----	1.2	1.3	1.8	1.4	1.2	-----	1.2(0.98) 1.8(2.43)
Moment.: 0.1(4.17) -3.8(4.89)	-1.8	-0.8	1.9	2.5	1.9	-0.7	-3.7	-2.5(0.29) 0.4(0.98) 2.5(2.43)
Cortant.: -8.3(x= 4.60)	-----	3.0	1.5	0.1	-1.5	-2.9	-----	3.8(x= 0.40)
Torsores: 4.60) Lim.: 0.54	-----	0.01	0.01	0.01	0.01	0.01	-----	Extr. apoio: 0.01(x= 0.40) 0.23(x=

Arm.Superior: 2Ø12.5(<<1.05+1.50=2.55) ----- 2Ø12.5(1.40>>)

Arm.Montagem: 2Ø8(2.55)

Arm.Inferior: 2Ø12.5(<<1.13+5.18=6.30)

Estribos: 32x1Ø8c/0.15(4.70)

Tramo nº 3 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.068 cm.
(C/7300)

Arm.sup: 1.7(4.77)	1.9	1.2	-----	-----	-----	1.2	1.6	1.9(0.06)
Arm.inf: 1.2(4.00)	-----	1.2	1.2	1.7	1.2	1.2	-----	1.7(2.50)
Moment.: 0.3(4.00) -3.0(5.00)	-3.7	-0.8	1.7	2.3	1.7	-0.8	-3.0	-3.7(0.00) 2.3(2.50)
Cortant.: -3.8(x= 4.60)	-----	3.0	1.5	0.0	-1.5	-3.0	-----	3.8(x= 0.40)
Torsores: 4.60) Lim.: 0.54	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.40) 0.00(x=

Arm.Superior: 2Ø12.5(<<1.40+1.55=2.95) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø12.5(5.15>>)

Estribos: 33x1Ø5c/0.14(4.60)

Tramo nº 4 (*P40-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.069 cm.
(C/7279)

Arm.sup: 1.7(4.77)	1.6	1.2	-----	-----	-----	1.2	1.6	1.7(0.23)
-----------------------	-----	-----	-------	-------	-------	-----	-----	-----------

Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.2(1.00) 1.7(2.50)
 1.2(4.00)
 Moment.: -3.0 -0.8 1.7 2.3 1.7 -0.8 -3.0 -3.0(0.00) 0.3(1.00) 2.3(2.50)
 0.3(4.00) -3.0(5.00)
 Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 3.8(x= 0.40)
 -3.8(x= 4.60)
 Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
 4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø12.5(<<5.15+5.15=10.30)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 5 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.070 cm.
(C/7122)

Arm.sup: 1.6 1.2 ----- ----- ----- 1.2 1.2 1.7(0.23)
 1.6(4.66)
 Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.7(2.50)
 Moment.: -3.0 -0.8 1.7 2.3 1.7 -0.8 -2.0 -3.0(x= 0.00) 2.3(x=
 2.50) -2.5(x= 4.77)
 Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 4.1(x= 0.40)
 -3.8(x= 4.60)
 Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
 4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø12.5(5.50)

Estribos: 34x1Ø5c/0.14(4.75)

Tramo nº 6 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.024 cm.
(C/21019)

Arm.sup: 1.2 1.2 ----- ----- ----- 1.2(0.06)
 0.0(4.83)
 Arm.inf: ----- ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.80)
 1.2(4.30)
 Moment.: -2.0 -0.3 0.2 0.5 0.5 0.2 -0.1 -2.0(0.00) 0.5(2.80)
 0.2(4.17) -0.1(4.89)

Cortant.: ----- 0.8 0.5 0.2 -0.2 -0.5 ----- 1.0(x= 0.40)
 -0.6(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø6.3(4.07+0.08D=4.15)

Arm.Inferior: 2Ø12.5(5.60+0.15D=5.75)

Estribos: 35x1Ø5c/0.14(4.80)

V 6 --- Grupo: 1

Tramo nº 1 (*V 3-V 3*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.628 cm. (C/797)

Arm.sup: -----

Arm.inf: ----- 2.2 3.5 4.0 3.5 2.2 ----- 2.0(0.71) 4.0(2.50)
 2.0(4.29)

Moment.: 0.0 3.1 4.9 5.6 4.9 3.1 0.0 0.0(0.00) 3.1(0.83) 5.6(2.50)
 3.1(4.17) 0.0(5.00)

Cortant.: 4.3 3.0 1.5 ----- -1.5 -3.0 -4.3 4.3(x= 0.00)
 -4.3(x= 5.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00) 0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+5.14+0.08D=5.30) -----

Arm.Inferior: 2Ø16(0.19D+5.14+0.19D=5.52), 1Ø10(3.85)

Estribos: 35x1Ø5c/0.14(4.80)

V 7 --- Grupo: 1

Tramo nº 1 (*V 1-P41*) (C= 0.93) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.014 cm. (C/6469)

Arm.sup: 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2(0.28)
 1.2(0.70)

Arm.inf: ----- 0.0(0.06)

Moment.: 0.0 -0.2 -0.6 -1.1 -1.4 -1.5 -1.3 0.0(0.00) 0.0(0.06) -0.1(0.19)
 -1.5(0.70)

Cortant.: 0.0 -2.8 -2.9 -3.0 ----- 0.0(x= 0.00)
 -3.0(x= 0.53)

Torsores: 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 0.53) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+0.90>>) -----

Arm.Inferior: 2Ø10(0.12D+0.90>>)

Estribos: 6x1Ø5c/0.14(0.80)

Tramo nº 2 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.014 cm.
(C/35998)

Arm.sup: 1.2 1.2 ----- 1.2 1.2 1.2(0.06)
1.2(4.94)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.50)

Moment.: -1.3 -0.2 0.4 0.5 0.4 -0.2 -0.7 -1.3(0.00) 0.5(2.50)
0.0(4.17) -0.7(5.00)

Cortant.: ----- 0.7 0.3 0.0 -0.3 -0.6 ----- 0.8(x= 0.40)
-0.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.02+1.53=2.55) ----- 2Ø10(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø10(<<1.02+5.18=6.20)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 3 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.015 cm.
(C/34407)

Arm.sup: 1.2 1.2 ----- 1.2 1.2 1.2(0.06)
1.2(4.94)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.50)
1.2(4.00)

Moment.: -0.7 -0.2 0.4 0.5 0.4 -0.2 -0.7 -0.7(0.00) 0.5(2.50)
0.1(4.00) -0.7(5.00)

Cortant.: ----- 0.7 0.3 0.0 -0.3 -0.7 ----- 0.8(x= 0.40)
-0.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.55=3.10) ----- 2Ø10(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø10(5.40)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 4 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.013 cm.
(C/37671)

Arm.sup: 1.2 1.2 ----- 1.2 1.2 1.2(0.06)
1.2(4.94)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.50)

Moment.: -0.7 -0.2 0.4 0.5 0.4 -0.2 -1.8 -0.7(x= 0.00) 0.5(x=
2.50) -1.8(x= 5.00)

Cortant.: ----- 0.7 0.3 -0.0 -0.3 -0.7 ----- 0.8(x= 0.40)
-0.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.55=3.10) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø10(5.35)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 5 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.071 cm.
(C/7032)

Arm.sup: 1.2 1.2 ----- 1.2 1.2 1.6(0.34)
1.6(4.66)

Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.7(2.50)

Moment.: -1.8 -0.8 1.7 2.3 1.7 -0.8 -2.0 -2.5(x= 0.29) 2.3(x=
2.50) -2.5(x= 4.77)

Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 3.8(x= 0.40)
-3.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø12.5(5.35)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 6 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.024 cm.
(C/21074)

Arm.sup: 1.2 1.2 ----- 1.2(0.06)
 0.0(4.83)
 Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.80)
 1.2(4.30)
 Moment.: -2.0 -0.3 0.2 0.5 0.5 0.2 -0.1 -2.0(0.00) 0.5(2.80)
 0.2(4.17) -0.1(4.89)
 Cortant.: ----- 0.8 0.5 0.2 -0.2 -0.5 ----- 1.0(x= 0.40)
 -0.6(x= 4.60)
 Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
 4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø6.3(4.17+0.08D=4.25)

Arm.Inferior: 2Ø10(5.58+0.12D=5.70)

Estribos: 35x1Ø5c/0.14(4.80)

V 8 --- Grupo: 1

Tramo nº 1 (* - *) (C= 0.44) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.000 cm.
(C/207105)

Arm.sup: 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2(0.12)
 1.2(0.40)
 Arm.inf: -----
 Moment.: -0.0 -0.0 -0.0 -0.0 -0.1 -0.1 -0.2 -0.0(x= 0.00) -0.0(x= 0.09)
 -0.2(x= 0.44)
 Cortant.: 0.0 -0.1 -0.3 -0.4 -0.5 -0.7 -0.8 0.0(x= 0.00)
 -0.8(x= 0.44)
 Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
 0.00(x= 0.44) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+0.40>>) -----

Arm.Inferior: 2Ø12.5(0.15D+0.40>>)

Estribos: 3x1Ø5c/0.14(0.31)

Tramo nº 2 (* -PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.076 cm.
(C/4730)

Arm.sup: 1.2 ----- 0.1 1.2(0.00)
 0.2(3.43)
 Arm.inf: ----- 1.2 1.5 1.6 1.2 1.2 ----- 1.2(0.69) 1.6(1.60)
 1.2(2.97)
 Moment.: -0.2 1.3 2.0 2.2 1.7 0.5 -0.3 -0.2(0.00) 1.4(0.69) 2.2(1.60)

0.6(2.97) -0.3(3.49)

Cortant.: -0.8 1.8 0.8 -0.3 -1.4 -2.5 ----- 2.9(x= 0.00)
-2.8(x= 3.20)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.00) 0.00(x= 3.20)
Lim.: 0.54

Arm.Superior: 2Ø10(<<0.52+3.97+0.12D=4.61) -----

Arm.Inferior: 2Ø12.5(<<0.55+3.97+0.15D=4.67)

Estribos: 25x1Ø5c/0.14(3.40)

V 9 --- Grupo: 1

Tramo nº 1 (*V 1-P41*) (C= 0.93) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.019 cm.
(C/4933)

Arm.sup: 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2(0.28)
1.2(0.87)

Arm.inf: ----- 0.0(0.06)

Moment.: 0.0 -0.1 -0.5 -0.9 -1.3 -1.9 -2.4 0.0(0.00) 0.0(0.06) -0.1(0.19)
-2.4(0.93)

Cortant.: 0.0 -2.2 -2.4 -2.7 ----- 0.0(x= 0.00)
-2.8(x= 0.53)

Torsores: 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 0.53)
Lim.: 0.54

Arm.Superior: 2Ø12.5(0.15D+0.90>>) -----

Arm.Inferior: 2Ø12.5(0.15D+0.90>>)

Estribos: 6x1Ø5c/0.14(0.80)

Tramo nº 2 (*P41-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.075 cm.
(C/6660)

Arm.sup: 1.2 1.2 ----- 1.2 1.6 1.7(0.34)
1.9(4.71)

Arm.inf: ----- 1.3 1.8 1.4 1.2 ----- 1.8(2.46)
1.2(4.03)

Moment.: -2.4 -0.8 1.8 2.5 1.9 -0.8 -3.2 -2.7(0.23) 2.5(2.46)
0.3(4.03) -3.2(4.94)

Cortant.: ----- 3.1 1.6 0.1 -1.4 -3.4 ----- 3.8(x= 0.40)
-4.2(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60)
Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.05+1.60=2.65) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.30)

Arm.Inferior: 2Ø12.5(<<1.05+5.20=6.25)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 3 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.067 cm.
(C/7496)

Arm.sup: 1.6 1.2 ----- 1.2 2.2 1.7(0.17)
2.1(4.94)

Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.7(2.50)
1.2(4.00)

Moment.: -3.2 -0.8 1.7 2.3 1.7 -0.8 -4.2 -3.2(0.00) 2.3(2.50)
0.3(4.00) -4.2(5.00)

Cortant.: ----- 3.0 1.5 -0.0 -1.5 -3.0 ----- 3.8(x= 0.40)
-3.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø12.5(1.60>>), 1Ø10(1.00>>)

Arm.Montagem: 2Ø5(2.35)

Arm.Inferior: 2Ø12.5(5.30)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 4 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.213 cm.
(C/2346)

Arm.sup: 2.2 1.3 ----- 1.4 3.0 3.1(0.34)
3.5(4.71)

Arm.inf: ----- 1.8 3.5 2.2 ----- 3.9(2.75)

Moment.: -4.2 -1.8 2.5 4.9 3.1 -2.0 -5.7 -4.7(x= 0.23) 5.4(x=
2.75) -5.8(x= 4.94)

Cortant.: ----- 5.1 3.6 2.1 -4.5 -6.0 ----- 5.9(x= 0.40)
-6.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.70=3.30), 1Ø10(<<1.00+1.15=2.15) ----- 2Ø12.5(1.70>>),
1Ø12.5(1.30>>)

Arm.Montagem: 2Ø5(2.10)

Arm.Inferior: 2Ø16(5.45)

Estribos: 26x1Ø5c/0.14(3.56), 9x1Ø5c/0.12(1.08)

Tramo nº 5 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.088 cm.
(C/5711)

Arm.sup: 3.0 1.2 ----- 1.2 1.7 3.1(0.17)
1.9(4.71)

Arm.inf: ----- 1.2 2.1 2.3 1.6 1.2 ----- 1.2(0.99) 2.3(2.38)
1.2(4.11)

Moment.: -5.7 -0.9 2.9 3.2 2.3 -1.0 -3.2 -5.7(0.00) 1.1(0.99) 3.2(2.38)
0.3(4.11) -3.2(4.94)

Cortant.: ----- 6.5 1.1 -0.4 -1.9 -3.4 ----- 7.2(x= 0.40)
-4.1(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.70+1.55=3.25), 1Ø12.5(<<1.30+1.05=2.35) ----- 2Ø12.5(1.65>>)

Arm.Montagem: 2Ø5(2.25)

Arm.Inferior: 2Ø12.5(5.30)

Estribos: 12x1Ø5c/0.1(1.20), 25x1Ø5c/0.14(3.52)

Tramo nº 6 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.069 cm.
(C/7240)

Arm.sup: 1.7 1.2 ----- 1.2 1.3 1.7(0.17)
1.6(4.71)

Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.2(1.00) 1.7(2.50)
1.2(4.00)

Moment.: -3.2 -0.8 1.7 2.3 1.7 -0.8 -2.5 -3.2(0.00) 0.3(1.00) 2.3(2.50)
0.3(4.00) -2.7(4.83)

Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 3.8(x= 0.40)
-3.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.65+1.55=3.20) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø12.5(5.30)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 7 (*P42-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.025 cm.
(C/14589)

Arm.sup: 1.3 1.2 ----- 0.1 1.3(0.06)
0.1(3.43)

Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.00)
1.2(3.00)

Moment.: -2.5 -0.9 0.4 1.0 1.0 0.4 -0.2 -2.5(0.00) 1.1(2.00)
0.4(3.00) -0.2(3.49)

Cortant.: ----- 2.7 1.6 0.5 -0.5 -1.6 ----- 3.0(x= 0.40)
-2.0(x= 3.20)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 3.20)
Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.35=2.90) ----- 2Ø6.3(2.97+0.08D=3.05)

Arm.Inferior: 2Ø10(4.23+0.12D=4.35)

Estribos: 25x1Ø5c/0.14(3.40)

V 10 --- Grupo: 1

Tramo nº 1 (*V 1-V 1*) (C= 0.83) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.000 cm.
(C/952554)

Arm.sup: -----

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(0.12) 1.2(0.41)
1.2(0.71)

Moment.: -0.0 0.0 0.0 0.0 0.0 0.0 -0.0 -0.0(-0.00) 0.0(0.14) 0.0(0.41)
0.0(0.69) -0.0(0.83)

Cortant.: 0.2 0.1 0.1 -0.0 -0.1 -0.1 -0.2 0.2(x= 0.00)
-0.2(x= 0.83)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x=-0.00)
0.00(x= 0.83) Lim.: 0.54

Arm.Montagem: 2Ø5(0.06D+0.96+0.06D=1.08)

Arm.Inferior: 2Ø10(0.12D+0.96+0.12D=1.20)

Estribos: 5x1Ø5c/0.14(0.63)

V 11 --- Grupo: 1

Tramo nº 1 (*V 1- *) (C= 1.50) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.160 cm.
(C/936)

Arm.sup: 1.2 1.2 1.2 1.7 2.6 3.5 4.4 1.2(0.50)
 4.0(1.40)

Arm.inf: ----- 0.0(0.06)

Moment.: 0.0 -0.5 -1.4 -2.4 -3.6 -4.8 -6.2 0.0(0.00) 0.0(0.06) -0.6(0.40)
 -6.2(1.50)

Cortant.: 0.0 -3.4 -3.9 -4.3 -4.8 -5.2 -5.5 0.0(x= 0.00)
 -5.5(x= 1.50)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.10)
 0.00(x= 1.50) Lim.: 0.54

Arm.Superior: 2Ø12.5(0.15D+1.47>>) ----- 1Ø16(1.25>>)

Arm.Inferior: 2Ø12.5(0.15D+1.47>>)

Estribos: 10x1Ø5c/0.14(1.37)

Tramo nº 2 (* - *) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.382 cm.
 (C/1310)

Arm.sup: 4.4 1.2 ----- 1.2 4.3 3.8(0.00)
 3.9(4.92)

Arm.inf: ----- 1.2 4.0 4.3 3.5 1.2 ----- 1.2(0.88) 4.3(2.21)
 1.7(4.06)

Moment.: -6.2 1.5 5.6 6.0 4.9 1.7 -6.1 -6.2(0.00) 1.7(0.88) 6.1(2.21)
 2.4(4.06) -6.1(5.00)

Cortant.: -5.5 5.6 4.1 -0.6 -2.1 -6.8 -8.1 7.0(x= 0.00)
 -8.1(x= 5.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
 0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.62+1.38=3.00), 1Ø16(<<1.25+1.00=2.25) ----- 1Ø12.5(1.20>>)

Arm.Montagem: 2Ø6.3(2.70)

Arm.Inferior: 2Ø12.5(<<5.00>>), 1Ø16(3.65)

Estribos: 23x1Ø6.3c/0.17(3.82), 7x1Ø6.3c/0.14(0.98)

Tramo nº 3 (* -V 2*) (C= 2.75) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= -0.047 cm.
 (C/-5829)

Arm.sup: 4.3 3.5 2.1 1.2 1.2 ----- 5.1(0.00)
 1.2(1.87)

Arm.inf: ----- 1.2 1.5 1.7 1.6 1.6(2.14)
 1.7(2.41)

Moment.: -6.1 -4.8 -2.9 -1.3 2.1 2.4 2.3 -7.1(0.00) 2.3(2.14)

2.4(2.41) -0.0(2.75)

Cortant.: -8.1 4.6 3.8 3.0 1.0 0.2 -0.5 5.3(x= 0.00)
-8.1(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 2.75) Lim.: 0.54

Arm.Superior: 1Ø12.5(<<1.20+0.85=2.05) -----

Arm.Montagem: 2Ø16(4.31+0.19D=4.50)

Arm.Inferior: 2Ø12.5(<<6.62+2.81+0.15D=9.58)

Estribos: 19x1Ø5c/0.14(2.55)

V 12 --- Grupo: 1

Tramo nº 1 (*V 3-V 3*) (C= 3.85) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.180 cm.
(C/2141)

Arm.sup: -----

Arm.inf: ----- 1.4 2.3 2.5 2.2 1.4 ----- 1.6(0.75) 2.5(1.78)
1.3(3.23)

Moment.: 0.0 1.9 3.2 3.5 3.1 1.9 -0.0 0.0(0.00) 2.2(0.75) 3.5(1.78)
1.9(3.21) -0.0(3.85)

Cortant.: 3.1 2.9 1.0 -0.1 -1.3 -2.4 -3.4 3.1(x= 0.00)
-3.4(x= 3.85)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 3.85) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.99+0.08D=4.15) -----

Arm.Inferior: 2Ø16(0.19D+3.99+0.19D=4.37)

Estribos: 27x1Ø5c/0.14(3.65)

V 13 --- Grupo: 1

Tramo nº 1 (*V 2- *) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.612 cm.
(C/817)

Arm.sup: ----- 1.7
1.5(4.96)

Arm.inf: ----- 2.4 3.9 3.9 3.1 1.6 ----- 2.5(0.90) 4.0(2.00)
1.8(4.09)

Moment.: -0.0 3.3 5.4 5.4 4.4 2.2 -2.4 -0.0(0.00) 3.5(0.90) 5.7(2.00)
2.5(4.09) -2.4(5.00)

Cortant.: 4.6 3.2 1.7 -0.9 -1.9 -3.4 -6.8 4.6(x= 0.00)

-6.8(x= 5.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x=-0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+4.27=4.35) ----- 2Ø12.5(1.10>>)

Arm.Inferior: 2Ø16(0.19D+5.07>>), 1Ø10(3.00)

Estribos: 29x1Ø5c/0.14(4.00), 8x1Ø5c/0.1(0.80)

Tramo nº 2 (* -V 3*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.644 cm.
(C/777)

Arm.sup: 1.7 ----- 1.4(0.00)

Arm.inf: ----- 1.6 3.6 4.3 3.7 2.3 ----- 2.0(0.98) 4.3(2.52)
2.3(4.17)

Moment.: -2.4 2.2 5.0 6.0 5.2 3.2 0.0 -2.4(0.00) 2.8(0.98) 6.0(2.52)
3.2(4.17) 0.0(5.00)

Cortant.: -6.8 4.3 2.5 -0.2 -1.6 -3.1 -4.5 5.6(x= 0.00)
-6.8(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.10+1.10=2.20) ----- 2Ø6.3(4.22+0.08D=4.30)

Arm.Inferior: 2Ø16(<<5.26+5.07+0.19D=10.52), 1Ø10(3.00)

Estribos: 35x1Ø5c/0.14(4.80)

V 14 --- Grupo: 1

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.186 cm.
(C/2694)

Arm.sup: 0.2 ----- 1.5 3.2 0.2(0.17)
3.8(4.71)

Arm.inf: ----- 1.2 2.1 2.2 1.5 ----- 1.2(0.86) 2.3(2.23)

Moment.: -0.3 1.4 2.9 3.1 2.1 -2.1 -6.1 -0.4(0.11) 1.5(0.86) 3.2(2.23)
-6.2(4.89)

Cortant.: ----- 2.5 1.0 -0.5 -1.9 -6.8 ----- 3.3(x= 0.40)
-7.5(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+4.12=4.20) ----- 2Ø20(1.70>>)

Arm.Inferior: 2Ø12.5(0.15D+5.55=5.70)

Estribos: 24x1Ø5c/0.14(3.25), 15x1Ø5c/0.1(1.50)

Tramo nº 2 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.142 cm.
(C/3527)

Arm.sup: 3.2 1.2 ----- 1.2 2.9 3.2(0.11)
3.3(4.71)

Arm.inf: ----- 1.2 2.8 3.1 2.3 1.2 ----- 1.2(0.98) 3.1(2.21)
1.2(4.05)

Moment.: -6.1 -1.6 3.9 4.3 3.3 -1.3 -5.6 -6.1(0.00) 0.6(0.98) 4.4(2.21)
0.9(4.05) -5.6(4.94)

Cortant.: ----- 5.7 4.2 -0.5 -2.0 -6.7 ----- 6.5(x= 0.40)
-7.5(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø20(<<1.70+1.65=3.35) ----- 2Ø12.5(1.60>>), 1Ø10(1.20>>)

Arm.Montagem: 2Ø5(2.20)

Arm.Inferior: 2Ø12.5(5.30), 1Ø10(3.00)

Estribos: 7x1Ø5c/0.13(0.80), 19x1Ø5c/0.14(2.67), 12x1Ø5c/0.1(1.20)

Tramo nº 3 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.207 cm.
(C/2412)

Arm.sup: 2.9 1.3 ----- 1.3 3.2 3.1(0.23)
3.7(4.71)

Arm.inf: ----- 1.8 3.5 2.2 ----- 3.8(2.75)

Moment.: -5.6 -1.8 2.6 4.9 3.1 -1.9 -6.1 -5.6(x= 0.00) 5.4(x=
2.75) -6.2(x= 4.89)

Cortant.: ----- 5.1 3.6 2.1 -4.3 -5.8 ----- 5.8(x= 0.40)
-8.7(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.70=3.30), 1Ø10(<<1.20+1.10=2.30) ----- 2Ø12.5(1.75>>),
1Ø12.5(1.35>>)

Arm.Montagem: 2Ø6.3(2.00)

Arm.Inferior: 2Ø16(5.40)

Estribos: 23x1Ø6.3c/0.17(3.92), 7x1Ø6.3c/0.13(0.80)

Tramo nº 4 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.089 cm.
(C/5592)

Arm.sup:	3.2	1.2	-----	-----	-----	1.2	1.7	3.2(0.11)
1.9(4.71)								
Arm.inf:	-----	1.2	2.1	2.3	1.7	1.2	-----	1.2(0.99) 2.4(2.38)
1.2(4.11)								
Moment.:	-6.1	-0.9	3.0	3.3	2.3	-1.0	-3.2	-6.1(0.00) 1.2(0.99) 3.3(2.38)
0.3(4.11) -3.3(4.94)								
Cortant.:	-----	6.8	1.1	-0.4	-1.9	-3.4	-----	7.5(x= 0.40)
-4.2(x= 4.60)								
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54								

Arm.Superior: 2Ø12.5(<<1.75+1.55=3.30), 1Ø12.5(<<1.35+1.05=2.40) ----- 2Ø12.5(1.65>>)

Arm.Montagem: 2Ø5(2.25)

Arm.Inferior: 2Ø12.5(5.40)

Estribos: 13x1Ø5c/0.1(1.30), 25x1Ø5c/0.14(3.45)

Tramo nº 5 (*P42-P43*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.069 cm.
(C/7240)

Arm.sup:	1.7	1.2	-----	-----	-----	1.2	1.3	1.7(0.17)
1.6(4.72)								
Arm.inf:	-----	1.2	1.2	1.7	1.2	1.2	-----	1.2(1.00) 1.7(2.50)
1.2(4.00)								
Moment.:	-3.2	-0.8	1.7	2.3	1.7	-0.8	-2.5	-3.2(0.00) 0.3(1.00) 2.3(2.50)
0.3(4.00) -2.7(4.83)								
Cortant.:	-----	3.0	1.5	0.0	-1.5	-3.0	-----	3.8(x= 0.40)
-3.8(x= 4.60)								
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54								

Arm.Superior: 2Ø12.5(<<1.65+1.55=3.20) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.50)

Arm.Inferior: 2Ø12.5(5.40)

Estribos: 34x1Ø5c/0.14(4.70)

Tramo nº 6 (*P43-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.025 cm.
(C/14559)

Arm.sup: 1.3 1.2 ----- 0.1 1.3(0.06)
 0.1(3.43)
 Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.00)
 1.2(3.00)
 Moment.: -2.5 -0.9 0.4 1.0 1.0 0.4 -0.2 -2.5(0.00) 1.1(2.00)
 0.4(3.00) -0.2(3.49)
 Cortant.: ----- 2.7 1.6 0.5 -0.6 -1.6 ----- 3.0(x= 0.40)
 -2.0(x= 3.20)
 Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
 3.20) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.35=2.90) ----- 2Ø6.3(2.97+0.08D=3.05)

Arm.Inferior: 2Ø10(4.08+0.12D=4.20)

Estribos: 24x1Ø5c/0.14(3.35)

V 15 --- Grupo: 1

Tramo nº 1 (*V 1-V 9*) (C= 1.29) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.008 cm.
(C/15611)

Arm.sup: 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2(0.36)
 1.2(1.21)
 Arm.inf: -----
 Moment.: 0.0 -0.0 -0.1 -0.2 -0.3 -0.5 -0.6 -0.0(0.10) 0.0(0.06) -0.0(0.27)
 -0.6(1.29)
 Cortant.: 0.0 -0.3 -0.4 -0.5 -0.6 -0.7 -1.0 0.0(x= 0.00)
 -1.0(x= 1.29)
 Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.10)
 0.00(x= 1.29) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+1.26>>) -----

Arm.Inferior: 2Ø10(0.17D+1.26>>)

Estribos: 9x1Ø5c/0.14(1.16)

Tramo nº 2 (*V 9-V 7*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.039 cm.
(C/12749)

Arm.sup: 1.2 ----- 1.2 1.2 1.2(0.00)
 1.2(4.64)
 Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(0.71) 1.2(2.14)
 Moment.: -0.6 0.2 0.6 0.7 0.5 -0.2 -1.2 -0.6(0.00) 0.2(0.83) 0.7(2.14)
 -1.2(5.00)

Cortant.: -1.0 0.8 0.3 -0.1 -0.6 -1.0 -1.5 1.2(x= 0.00)
-1.5(x= 5.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.38+1.17=2.55) ----- 2Ø12.5(1.25>>)

Arm.Montagem: 2Ø5(3.10)

Arm.Inferior: 2Ø10(<<5.00>>)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 3 (*V 7-V 5*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.016 cm.
(C/25716)

Arm.sup: 1.2 1.2 ----- 1.2(0.00)

Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.57)
1.2(3.43)

Moment.: -1.2 -0.4 0.1 0.5 0.5 0.4 -0.0 -1.2(0.00) 0.5(2.57)
0.4(3.33) -0.0(4.00)

Cortant.: -1.5 1.0 0.7 0.3 -0.1 -0.4 -0.8 1.4(x= 0.00)
-1.5(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 4.00) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.25+1.40=2.65) ----- 2Ø6.3(2.92+0.08D=3.00)

Arm.Inferior: 2Ø10(<<6.43+4.07+0.12D=10.62)

Estribos: 28x1Ø5c/0.14(3.80)

V 16 --- Grupo: 1

Tramo nº 1 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.113 cm.
(C/4442)

Arm.sup: 0.2 ----- 1.2 1.9 0.2(0.17)
2.5(4.66)

Arm.inf: ----- 1.2 1.7 1.7 1.2 ----- 1.2(0.89) 1.8(2.10)

Moment.: -0.3 1.1 2.3 2.3 1.1 -1.5 -3.7 -0.4(0.11) 1.2(0.89) 2.5(2.10)
-3.9(4.83)

Cortant.: ----- 2.2 0.7 -0.8 -2.3 -4.0 ----- 3.0(x= 0.40)
-4.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.92=4.00) ----- 2Ø12.5(1.80>>)

Arm.Inferior: 2Ø12.5(0.15D+5.65=5.80)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 2 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.068 cm.
(C/7303)

Arm.sup: 1.9 1.2 ----- 1.2 1.3 1.9(0.06)
1.6(4.71)

Arm.inf: ----- 1.2 1.2 1.7 1.2 1.2 ----- 1.2(1.00) 1.7(2.50)
1.2(4.00)

Moment.: -3.7 -0.8 1.7 2.3 1.7 -0.8 -2.4 -3.7(0.00) 0.3(1.00) 2.3(2.50)
0.3(4.00) -2.6(4.83)

Cortant.: ----- 3.0 1.5 0.0 -1.5 -3.0 ----- 3.8(x= 0.40)
-3.7(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.80+1.60=3.40) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.35)

Arm.Inferior: 2Ø12.5(5.40)

Estribos: 34x1Ø5c/0.14(4.75)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.021 cm.
(C/19060)

Arm.sup: 1.3 1.2 ----- 1.2 1.6 1.3(0.06)
1.5(3.94)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.00)

Moment.: -2.4 -0.6 0.9 1.4 1.0 -0.6 -3.1 -2.4(x= 0.00) 1.4(x=
2.00) -3.1(x= 4.00)

Cortant.: ----- 2.4 1.2 0.0 -1.2 -2.4 ----- 2.9(x= 0.40)
-2.8(x= 3.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
3.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.40=2.95) ----- 2Ø12.5(1.45>>)

Arm.Montagem: 2Ø5(1.60)

Arm.Inferior: 2Ø10(4.30)

Estribos: 27x1Ø5c/0.14(3.70)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.162 cm.
(C/3698)

Arm.sup: 1.6 1.2 ----- 1.2 1.8 2.5(0.34)
2.5(5.66)

Arm.inf: ----- 1.2 1.9 2.5 1.9 1.2 ----- 1.2(1.14) 2.5(3.00)
1.2(4.86)

Moment.: -3.1 -1.0 2.6 3.6 2.7 -1.0 -3.5 -3.8(0.23) 0.5(1.14) 3.6(3.00)
0.5(4.86) -3.8(5.77)

Cortant.: ----- 3.6 1.8 0.0 -1.8 -3.6 ----- 4.7(x= 0.40)
-4.7(x= 5.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
5.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.45+1.75=3.20) ----- 2Ø12.5(1.76>>)

Arm.Montagem: 2Ø5(2.95)

Arm.Inferior: 2Ø12.5(6.30), 1Ø10(4.95)

Estribos: 41x1Ø5c/0.14(5.70)

Tramo nº 5 (*P40-V 1*) (C= 1.68) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.078 cm.
(C/2151)

Arm.sup: 1.8 1.6 1.2 1.2 1.2 1.2 1.2 1.8(0.06)
1.2(1.16)

Arm.inf: ----- 0.0(1.61)

Moment.: -3.5 -2.5 -1.7 -1.0 -0.5 -0.2 -0.0 -3.5(0.00) -0.1(1.32)
0.0(1.61) -0.0(1.67)

Cortant.: ----- 2.5 2.0 1.5 1.0 0.0 2.8(x= 0.40)
-0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.40) 0.00(x=
1.58) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.76+1.65+0.15D=3.55) -----

Arm.Inferior: 2Ø8(1.80+0.10D=1.90)

Estribos: 11x1Ø5c/0.14(1.50)

V 17 --- Grupo: 1

Tramo nº 1 (*V 1-V 9*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.183 cm.
(C/2728)

Arm.sup: -----

Arm.inf: ----- 1.5 2.2 1.9 1.2 1.2 ----- 1.4(0.77) 2.2(1.80)
1.2(4.00)

Moment.: -0.0 2.1 3.0 2.7 1.1 0.3 0.0 -0.0(0.00) 2.1(0.83) 3.1(1.80)
0.3(4.00) 0.0(5.00)

Cortant.: 3.2 1.8 0.3 -1.2 -2.7 -0.2 -0.5 3.2(x= 0.00)
-3.1(x= 3.60)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+5.14+0.08D=5.30) -----

Arm.Inferior: 2Ø10(0.12D+5.14+0.12D=5.38), 1Ø10(3.95)

Estribos: 35x1Ø5c/0.14(4.80)

V 18 --- Grupo: 1

Tramo nº 1 (*V 5- *) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.789 cm.
(C/760)

Arm.sup: 0.2 ----- 1.2 4.2 1.2(0.00)
3.7(5.91)

Arm.inf: ----- 2.5 3.9 3.9 2.8 1.2 ----- 2.5(1.00) 4.1(2.67)
1.2(4.87)

Moment.: -0.2 3.5 5.4 5.5 3.9 0.4 -5.9 -0.2(0.00) 3.5(1.00) 5.7(2.67)
1.0(4.87) -5.9(6.00)

Cortant.: 4.5 2.8 1.0 -0.8 -2.6 -5.1 -6.8 4.5(x= 0.00)
-6.8(x= 6.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 6.00) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+4.83=4.95) ----- 2Ø16(1.62>>), 1Ø10(1.20>>)

Arm.Inferior: 2Ø16(0.19D+6.07>>), 1Ø10(3.60)

Estribos: 36x1Ø5c/0.14(5.00), 7x1Ø5c/0.12(0.80)

Tramo nº 2 (* -V 1*) (C= 1.68) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.227 cm.
(C/740)

Arm.sup: 4.2 3.3 2.6 1.8 1.2 1.2 1.2 4.1(0.00)
1.2(1.13)

Arm.inf: ----- 0.0(1.61)

Moment.: -5.9 -4.7 -3.6 -2.6 -1.6 -0.6 0.0 -5.9(0.00) -0.7(1.24)
0.0(1.61) 0.0(1.68)

Cortant.: -6.8 3.8 3.7 3.6 3.5 3.4 0.0 4.0(x= 0.00)
-6.8(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 1.58) Lim.: 0.54

Arm.Superior: 2Ø16(<<1.62+1.65+0.19D=3.45), 1Ø10(<<1.20+1.65=2.85) -----

Arm.Inferior: 2Ø16(<<6.26+1.64+0.19D=8.09)

Estribos: 12x1Ø5c/0.14(1.55)

V 19 --- Grupo: 1

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.238 cm.
(C/2101)

Arm.sup: 0.1 ----- 1.8 2.9 0.1(0.17)
5.8(4.66)

Arm.inf: 0.1 1.3 2.3 3.0 3.6 ----- 1.3(0.86) 3.8(3.60)
1.2(4.03)

Moment.: 0.3 1.8 3.2 4.3 5.1 -2.6 -5.6 -0.2(0.11) 1.8(0.86) 5.3(3.60)
0.1(4.03) -8.6(4.71)

Cortant.: ----- 1.8 1.5 1.2 0.9 -12.3 ----- 2.0(x= 0.40)
-12.5(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.77=3.85) ----- 2Ø16(1.85>>), 1Ø16(1.55>>)

Arm.Inferior: 2Ø16(0.19D+5.56=5.75), 1Ø10(5.30)

Estribos: 22x1Ø8c/0.15(3.28), 12x1Ø8c/0.12(1.44)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.008 cm.
(C/64972)

Arm.sup: 2.9 1.2 ----- 1.2 1.2 2.5(0.06)
1.2(4.94)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.50)
1.2(4.00)

Moment.: -5.6 -0.2 0.4 0.5 0.4 -0.1 -0.6 -5.6(0.00) 0.5(2.50)
0.1(4.00) -0.6(5.00)

Cortant.: ----- 0.7 0.4 0.0 -0.3 -0.6 ----- 0.8(x= 0.40)
-0.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 2Ø16(<<1.85+1.70=3.55), 1Ø16(<<1.55+1.00=2.55) ----- 2Ø10(1.55>>)

Arm.Montagem: 2Ø5(2.25)

Arm.Inferior: 2Ø10(5.45)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.008 cm. (C/48114)

Arm.sup: 1.2 1.2 ----- 1.2(0.06)
0.0(3.83)

Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.46)
1.2(3.37)

Moment.: -0.6 -0.3 0.1 0.3 0.3 0.1 -0.0 -0.6(0.00) 0.3(2.46)
0.1(3.33) -0.1(3.89)

Cortant.: ----- 0.7 0.4 0.1 -0.1 -0.4 ----- 0.8(x= 0.40)
-0.5(x= 3.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 3.60) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.60=3.15) ----- 2Ø6.3(3.02+0.08D=3.10)

Arm.Inferior: 2Ø10(4.53+0.12D=4.65)

Estribos: 27x1Ø5c/0.14(3.72)

V 20 --- Grupo: 1

Tramo nº 1 (*V 1-V 1*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.119 cm. (C/3035)

Arm.sup: -----

Arm.inf: ----- 1.2 1.8 2.1 1.8 1.2 ----- 1.2(0.51) 2.1(1.80)
1.2(3.09)

Moment.: -0.0 1.6 2.6 2.9 2.6 1.6 -0.0 -0.0(0.00) 1.6(0.60) 2.9(1.80)
1.6(3.00) -0.0(3.60)

Cortant.: 3.1 2.2 1.1 ----- -1.1 -2.2 -3.1 3.1(x= 0.00)
-3.1(x= 3.60)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 3.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.74+0.08D=3.90) -----

Arm.Inferior: 2Ø12.5(0.15D+3.74+0.15D=4.04)

Estribos: 25x1Ø5c/0.14(3.40)

V 21 --- Grupo: 1

Tramo nº 1 (*V 4- *) (C= 1.42) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.032 cm.
(C/4485)

Arm.sup: 1.2 1.2 1.2 1.2 1.2 1.2 1.5 1.2(0.38)
1.4(1.33)

Arm.inf: ----- 0.0(0.06)

Moment.: 0.0 -0.1 -0.3 -0.6 -1.0 -1.6 -2.2 -0.0(0.10) 0.0(0.06) -0.1(0.29)
-2.2(1.42)

Cortant.: 0.0 -0.7 -1.1 -1.6 -2.0 -2.4 -2.7 0.0(x= 0.00)
-2.7(x= 1.42)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.10)
0.00(x= 1.42) Lim.: 0.54

Arm.Superior: 2Ø12.5(0.15D+1.39>>) -----

Arm.Inferior: 2Ø10(0.12D+1.39>>)

Estribos: 10x1Ø5c/0.14(1.29)

Tramo nº 2 (* -V 1*) (C= 1.68) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.041 cm.
(C/4143)

Arm.sup: 1.5 1.2 1.2 1.2 1.2 1.2 1.2 1.5(0.00)
1.2(1.13)

Arm.inf: -----

Moment.: -2.2 -1.5 -0.9 -0.5 -0.2 -0.1 -0.0 -2.2(0.00) -0.0(1.32)
0.0(1.63) -0.0(1.67)

Cortant.: -2.7 2.3 1.8 1.3 0.8 0.3 0.0 2.6(x= 0.00)
-2.7(x= 0.00)

Torsores: 0.00 0.01 0.01 0.01 0.01 0.01 0.00 Extr. apoio: 0.00(x= 0.00)
0.01(x= 1.58) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.54+1.64+0.15D=3.33) -----

Arm.Inferior: 2Ø10(<<1.51+1.64+0.12D=3.27)

Estribos: 12x1Ø5c/0.14(1.55)

V 22 --- Grupo: 1

Tramo nº 1 (*V 1-V 1*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.119 cm. (C/3035)

Arm.sup: -----

Arm.inf: ----- 1.2 1.8 2.1 1.8 1.2 ----- 1.2(0.51) 2.1(1.80)
1.2(3.09)

Moment.: 0.0 1.6 2.6 2.9 2.6 1.6 -0.0 0.0(0.00) 1.6(0.60) 2.9(1.80)
1.6(3.00) -0.0(3.60)

Cortant.: 3.1 2.2 1.1 ----- -1.1 -2.2 -3.1 3.1(x= 0.00)
-3.1(x= 3.60)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 3.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.74+0.08D=3.90) -----

Arm.Inferior: 2Ø12.5(0.15D+3.74+0.15D=4.04)

Estribos: 25x1Ø5c/0.14(3.40)

V 23 --- Grupo: 1

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.487 cm. (C/1026)

Arm.sup: 0.2 ----- 3.2 4.0 0.3(0.17)
9.0(4.60)

Arm.inf: ----- 1.5 3.6 5.0 3.9 ----- 1.8(0.96) 5.2(2.35)

Moment.: -0.4 2.0 5.0 7.0 5.5 -4.5 -7.8 -0.5(0.11) 2.5(0.96) 7.2(2.35)
-12.3(4.71)

Cortant.: ----- 3.7 3.4 -1.7 -2.0 -16.1 ----- 3.9(x= 0.40)
-16.3(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+3.63=3.75) ----- 3Ø16(2.05>>), 2Ø16(1.75>>)

Arm.Inferior: 3Ø16(0.19D+5.56=5.75)

Estribos: 19x1Ø10c/0.17(3.10), 11x1Ø10c/0.14(1.54)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.004 cm. (C/114418)

Arm.sup: 4.0 1.2 ----- 1.2 1.2 3.4(0.06)
1.2(4.89)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.50)
Moment.: -7.8 -0.2 0.3 0.5 0.4 -0.1 -0.5 -7.8(0.00) 0.5(2.50)
0.0(4.17) -0.5(4.89)
Cortant.: ----- 0.7 0.4 0.0 -0.3 -0.6 ----- 0.9(x= 0.40)
-0.8(x= 4.60)
Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 3Ø16(<<2.05+1.75=3.80), 2Ø16(<<1.75+1.00=2.75) ----- 2Ø10(1.55>>)

Arm.Montagem: 2Ø5(2.20)

Arm.Inferior: 2Ø10(5.35)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.002 cm.
(C/182752)

Arm.sup: 1.2 1.2 ----- ----- ----- 1.2 1.5 1.2(0.06)
1.3(3.94)
Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.00)
Moment.: -0.5 -0.1 0.2 0.3 0.2 -0.1 -2.8 -0.5(x= 0.00) 0.3(x= 2.00)
-2.8(x= 4.00)
Cortant.: ----- 0.5 0.3 0.0 -0.3 -0.5 ----- 0.6(x= 0.40)
-0.6(x= 3.60)
Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 3.60) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.40=2.95) ----- 2Ø12.5(1.45>>), 1Ø10(0.80>>)

Arm.Montagem: 2Ø5(1.60)

Arm.Inferior: 2Ø10(4.35)

Estribos: 27x1Ø5c/0.14(3.72)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.288 cm.
(C/2086)

Arm.sup: 1.5 1.2 ----- ----- ----- 1.2 4.5 3.0(0.40)
5.1(5.71)
Arm.inf: ----- 1.2 2.7 3.8 3.7 1.2 ----- 1.2(1.01) 3.9(3.45)
2.0(4.81)
Moment.: -2.8 -1.3 3.8 5.4 5.1 1.0 -8.6 -4.4(0.29) 0.6(1.01) 5.5(3.45)
2.8(4.81) -8.7(5.94)

Cortant.: ----- 4.2 2.4 0.6 -1.1 -9.4 ----- 5.3(x= 0.40)
 -10.5(x= 5.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 5.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.45+1.95=3.40), 1Ø10(<<0.80+1.20=2.00) ----- 3Ø16(1.67>>)

Arm.Montagem: 2Ø6.3(2.85)

Arm.Inferior: 2Ø16(6.07>>), 1Ø16(6.30)

Estribos: 26x1Ø6.3c/0.17(4.30), 15x1Ø6.3c/0.1(1.50)

Tramo nº 5 (*P40-V 1*) (C= 1.67) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.308 cm.
 (C/546)

Arm.sup: 4.5 4.9 3.9 2.3 1.2 1.2 1.2 4.9(0.29)
 1.2(1.13)

Arm.inf: ----- 1.2(1.58)

Moment.: -8.6 -7.6 -5.5 -3.3 -1.1 -0.4 -0.0 -8.6(0.00) -0.3(1.32)
 0.0(1.60) -0.0(1.67)

Cortant.: ----- 8.0 7.8 7.5 2.3 0.0 8.0(x= 0.40)
 -0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.40) 0.00(x= 1.58) Lim.: 0.54

Arm.Superior: 3Ø16(<<1.67+1.65+0.19D=3.50) -----

Arm.Inferior: 2Ø16(<<6.07+1.65+0.19D=7.90)

Estribos: 12x1Ø6.3c/0.14(1.55)

V 24 --- Grupo: 1

Tramo nº 1 (*V 4- *) (C= 1.42) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.031 cm.
 (C/4610)

Arm.sup: 1.2 1.2 1.2 1.2 1.2 1.2 1.5 1.2(0.38)
 1.3(1.33)

Arm.inf: ----- 0.0(0.06)

Moment.: 0.0 -0.1 -0.3 -0.6 -1.0 -1.5 -2.1 -0.0(0.10) 0.0(0.06) -0.1(0.29)
 -2.1(1.42)

Cortant.: 0.0 -0.7 -1.1 -1.5 -1.9 -2.4 -2.6 0.0(x= 0.00)
 -2.6(x= 1.42)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.10)
 0.00(x= 1.42) Lim.: 0.54

Arm.Superior: 2Ø12.5(0.15D+1.39>>) -----

Arm.Inferior: 2Ø10(0.12D+1.39>>)

Estribos: 10x1Ø5c/0.14(1.29)

Tramo nº 2 (* -V 1*) (C= 1.68) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.040 cm.
(C/4251)

Arm.sup: 1.5 1.2 1.2 1.2 1.2 1.2 1.2 1.5(0.00)
1.2(1.13)

Arm.inf: -----

Moment.: -2.1 -1.4 -0.9 -0.4 -0.2 -0.1 -0.0 -2.1(0.00) -0.0(1.32)
0.0(1.62) -0.0(1.67)

Cortant.: -2.6 2.3 1.8 1.3 0.8 0.3 0.0 2.6(x= 0.00)
-2.6(x= 0.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 1.58) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.54+1.64+0.15D=3.33) -----

Arm.Inferior: 2Ø10(<<1.51+1.64+0.12D=3.27)

Estribos: 12x1Ø5c/0.14(1.55)

V 25 --- Grupo: 1

Tramo nº 1 (*V 1-V 1*) (C= 1.25) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.002 cm.
(C/79924)

Arm.sup: -----

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(0.18) 1.2(0.63)
1.2(1.07)

Moment.: 0.0 0.2 0.3 0.3 0.3 0.2 0.0 0.0(0.00) 0.2(0.21) 0.3(0.63)
0.2(1.04) 0.0(1.25)

Cortant.: 1.0 0.7 0.4 ----- -0.4 -0.7 -1.0 1.0(x= 0.00)
-1.0(x= 1.25)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 1.25) Lim.: 0.54

Arm.Montagem: 2Ø5(0.08D+1.39+0.06D=1.53)

Arm.Inferior: 2Ø10(0.12D+1.39+0.12D=1.63)

Estribos: 8x1Ø5c/0.14(1.05)

V 26 --- Grupo: 1

Tramo nº 1 (*V 1-V 9*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.756 cm.
(C/661)

Arm.sup: -----

Arm.inf: ----- 2.5 4.1 4.7 4.2 2.6 ----- 2.5(0.84) 4.7(2.44)
3.0(4.00)

Moment.: 0.0 3.5 5.7 6.6 5.9 3.7 -0.0 0.0(0.00) 3.5(0.84) 6.6(2.44)
4.2(4.00) -0.0(5.00)

Cortant.: 4.8 3.4 1.9 -0.1 -1.6 -3.7 -5.0 4.8(x= 0.00)
-5.0(x= 5.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+5.14+0.08D=5.30) -----

Arm.Inferior: 2Ø16(0.19D+5.14+0.19D=5.52), 1Ø10(3.80)

Estribos: 35x1Ø5c/0.14(4.80)

V 27 --- Grupo: 1

Tramo nº 1 (*V 1-V 1*) (C= 2.35) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.020 cm.
(C/11794)

Arm.sup: -----

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(0.34) 1.2(1.18)
1.2(2.02)

Moment.: 0.0 0.7 1.1 1.2 1.1 0.7 -0.0 0.0(0.00) 0.7(0.39) 1.2(1.18)
0.7(1.96) -0.0(2.35)

Cortant.: 2.0 1.4 0.7 ----- -0.7 -1.4 -2.0 2.0(x= 0.00)
-2.0(x= 2.35)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 2.35) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+2.49+0.08D=2.65) -----

Arm.Inferior: 2Ø10(0.12D+2.49+0.12D=2.73)

Estribos: 16x1Ø5c/0.14(2.15)

V 28 --- Grupo: 1

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.271 cm.

(C/1848)

Arm.sup: 0.2 ----- 2.9 2.5 0.3(0.17)
5.0(4.60)

Arm.inf: ----- 1.5 3.8 5.0 1.5 ----- 1.7(0.95) 5.6(2.33)

Moment.: -0.6 2.4 6.9 8.9 2.0 -5.1 -5.8 -0.7(0.11) 3.1(0.95) 10.1(2.33)
-9.3(4.66)

Cortant.: ----- 5.5 5.1 -8.1 -8.4 -8.8 ----- 5.7(x= 0.40)
-9.0(x= 4.60)

Torsores: ----- 0.00 0.00 0.01 0.01 0.01 ----- Extr. apoio: 0.00(x= 0.40) 0.01(x=
4.60) Lim.: 0.72

Arm.Superior: 2Ø12.5(0.15D+5.37>>) ----- 2Ø16(2.10>>)

Arm.Pele: 6Ø6.3(5.25)

Arm.Inferior: 3Ø16(0.19D+5.56=5.75), 1Ø16(0.19D+5.56=5.75)

Estribos: 48x1Ø10c/0.1(4.72)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.006 cm.
(C/89426)

Arm.sup: 2.5 1.5 ----- 1.5 1.5 2.1(0.06)
1.5(4.94)

Arm.inf: ----- 1.5 1.5 1.5 1.5 1.5 ----- 1.5(2.50)

Moment.: -5.8 -0.3 0.4 0.6 0.5 -0.2 -0.7 -5.8(0.00) 0.6(2.50)
0.0(4.17) -0.7(5.00)

Cortant.: ----- 0.8 0.4 0.0 -0.4 -0.7 ----- 1.0(x= 0.40)
-0.9(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.72

Arm.Superior: 2Ø12.5(<<5.52+1.98=7.50), 2Ø16(<<2.10+1.35=3.45) ----- 2Ø10(1.65>>)

Arm.Montagem: 2Ø5(2.10)

Arm.Inferior: 2Ø10(5.45)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.005 cm.
(C/79457)

Arm.sup: 1.5 1.5 ----- 1.5(0.06)
0.0(3.83)

Arm.inf: ----- 1.5 1.5 1.5 1.5 ----- 1.5(2.46)
1.5(3.37)

Moment.: -0.7 -0.3 0.1 0.3 0.3 0.1 -0.1 -0.7(0.00) 0.4(2.46)
0.1(3.33) -0.1(3.89)

Cortant.: ----- 0.8 0.5 0.2 -0.1 -0.5 ----- 0.9(x= 0.40)
-0.6(x= 3.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 3.60) Lim.: 0.72

Arm.Superior: 2Ø10(<<1.65+1.75=3.40) ----- 2Ø6.3(2.87+0.08D=2.95)

Arm.Inferior: 2Ø10(4.53+0.12D=4.65)

Estribos: 27x1Ø5c/0.14(3.72)

V 29 --- Grupo: 1

Tramo nº 1 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.336 cm.
(C/1787)

Arm.sup: 0.2 ----- 1.5 2.9 0.3(0.17)
4.0(5.60)

Arm.inf: ----- 1.4 2.6 2.6 1.3 ----- 1.4(1.01) 2.8(2.54)

Moment.: -0.4 1.9 3.7 3.6 1.8 -2.1 -5.5 -0.4(0.11) 2.0(1.01) 3.9(2.54)
-6.1(5.77)

Cortant.: ----- 2.7 0.9 -0.9 -2.7 -5.3 ----- 3.7(x= 0.40)
-6.4(x= 5.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 5.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+4.77=4.85) ----- 2Ø16(1.92>>), 1Ø12.5(1.35>>)

Arm.Inferior: 2Ø10(0.12D+6.37>>), 1Ø12.5(4.40)

Estribos: 42x1Ø5c/0.14(5.80)

Tramo nº 2 (*P40-V 1*) (C= 1.67) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.169 cm.
(C/996)

Arm.sup: 2.9 2.6 2.1 1.5 1.2 1.2 1.2 2.8(0.06)
1.2(1.16)

Arm.inf: ----- 0.0(1.61)

Moment.: -5.5 -4.0 -3.0 -2.1 -1.3 -0.5 -0.0 -5.5(0.00) -0.4(1.32)
0.0(1.61) -0.0(1.67)

Cortant.: ----- 3.1 3.0 2.9 2.8 0.0 3.2(x= 0.40)
-0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.40) 0.00(x=

1.58) Lim.: 0.54

Arm.Superior: 2Ø16(<<1.92+1.65+0.19D=3.75), 1Ø12.5(<<1.35+0.95=2.30) -----

Arm.Inferior: 2Ø10(<<6.49+1.64+0.12D=8.25)

Estribos: 12x1Ø5c/0.14(1.55)

V 30 --- Grupo: 1

Tramo nº 1 (*V 1-V 9*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.587 cm.
(C/852)

Arm.sup: -----

Arm.inf: ----- 2.0 3.2 3.5 3.6 2.2 ----- 2.3(1.00) 3.6(3.14)
2.4(4.10)

Moment.: 0.0 2.9 4.5 5.0 5.0 3.1 -0.0 0.0(0.00) 3.3(1.00) 5.1(3.14)
3.3(4.10) -0.0(5.00)

Cortant.: 4.1 2.7 1.2 0.3 -0.1 -3.5 -3.9 4.1(x= 0.00)
-3.9(x= 5.00)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 5.00) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+5.14+0.08D=5.30) -----

Arm.Inferior: 2Ø12.5(0.15D+5.14+0.15D=5.44), 1Ø12.5(4.05)

Estribos: 35x1Ø5c/0.14(4.80)

V 31 --- Grupo: 1

Tramo nº 1 (*V 1-V 1*) (C= 1.27) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.002 cm.
(C/74249)

Arm.sup: -----

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(0.18) 1.2(0.64)
1.2(1.09)

Moment.: -0.0 0.2 0.3 0.4 0.3 0.2 -0.0 -0.0(0.00) 0.2(0.21) 0.4(0.64)
0.2(1.06) -0.0(1.27)

Cortant.: 1.0 0.8 0.4 0.0 -0.4 -0.8 -1.1 1.0(x= 0.00)
-1.1(x= 1.27)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
0.00(x= 1.27) Lim.: 0.54

Arm.Montagem: 2Ø5(0.08D+1.41+0.06D=1.55)

Arm.Inferior: 2Ø10(0.12D+1.41+0.12D=1.65)

Estribos: 8x1Ø5c/0.14(1.07)

V 32 --- Grupo: 1

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.264 cm.
(C/1896)

Arm.sup: 0.1 ----- 1.9 2.0 0.2(0.17)
4.0(4.60)

Arm.inf: ----- 1.2 2.3 3.0 1.4 ----- 1.2(0.95) 3.3(2.33)

Moment.: -0.3 1.2 3.2 4.2 1.9 -2.7 -3.9 -0.3(0.11) 1.5(0.95) 4.7(2.33)
-6.0(4.71)

Cortant.: ----- 2.6 2.3 -2.6 -2.9 -6.8 ----- 2.8(x= 0.40)
-7.0(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.82=3.90) ----- 2Ø16(1.85>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.55=5.70), 1Ø12.5(3.00)

Estribos: 23x1Ø5c/0.14(3.20), 15x1Ø5c/0.1(1.50)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.009 cm.
(C/57335)

Arm.sup: 2.0 1.2 ----- 1.2 1.3 1.7(0.06)
1.2(4.94)

Arm.inf: ----- 1.2 1.2 1.2 1.2 1.2 ----- 1.2(2.50)
1.2(4.00)

Moment.: -3.9 -0.2 0.4 0.5 0.4 -0.2 -2.5 -3.9(0.00) 0.5(2.50)
0.1(4.00) -2.5(5.00)

Cortant.: ----- 0.7 0.3 0.0 -0.3 -0.6 ----- 0.8(x= 0.40)
-0.8(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø16(<<1.85+1.70=3.55), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø10(1.55>>),
1Ø10(1.00>>)

Arm.Montagem: 2Ø5(2.25)

Arm.Inferior: 2Ø10(5.30)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.052 cm.
(C/7662)

Arm.sup: 1.3 1.2 ----- 1.2 2.0 2.3(0.34)
2.0(3.94)

Arm.inf: ----- 1.7 2.0 1.2 ----- 2.3(1.55)

Moment.: -2.5 -1.6 2.4 2.8 1.5 -1.2 -3.8 -3.5(x= 0.29) 3.3(x=
1.55) -3.8(x= 4.00)

Cortant.: ----- 5.5 4.3 -1.4 -2.6 -3.8 ----- 6.0(x= 0.40)
-4.2(x= 3.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
3.60) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.50=3.05), 1Ø10(<<1.00+1.20=2.20) ----- 2Ø12.5(1.60>>)

Arm.Montagem: 2Ø5(1.40)

Arm.Inferior: 2Ø12.5(4.45)

Estribos: 27x1Ø5c/0.14(3.65)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.159 cm.
(C/3771)

Arm.sup: 2.0 1.2 ----- 1.2 2.2 2.5(0.34)
2.5(5.71)

Arm.inf: ----- 1.2 1.9 2.5 1.9 1.2 ----- 1.2(1.14) 2.5(3.00)
1.2(4.86)

Moment.: -3.8 -1.0 2.6 3.6 2.7 -1.0 -4.2 -4.0(0.17) 0.5(1.14) 3.6(3.00)
0.5(4.86) -4.2(6.00)

Cortant.: ----- 3.6 1.8 0.0 -1.8 -3.6 ----- 4.7(x= 0.40)
-4.7(x= 5.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
5.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.75=3.35) ----- 2Ø12.5(1.76>>)

Arm.Montagem: 2Ø5(2.95)

Arm.Inferior: 2Ø16(6.40)

Estribos: 41x1Ø5c/0.14(5.70)

Tramo nº 5 (*P40-V 1*) (C= 1.67) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.155 cm.
(C/1085)

Arm.sup: 2.2 2.5 2.1 1.5 1.2 1.2 1.2 2.5(0.40)

1.2(1.16)

Arm.inf: ----- 0.0(1.61)

Moment.: -4.2 -3.8 -3.0 -2.1 -1.3 -0.5 -0.0 -4.2(0.00) -0.4(1.32)
0.0(1.61) -0.0(1.67)

Cortant.: ----- 3.1 3.0 2.9 2.8 0.0 3.2(x= 0.40)
-0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.40) 0.00(x= 1.58) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.76+1.65+0.15D=3.55) -----

Arm.Inferior: 2Ø8(1.80+0.10D=1.90)

Estribos: 12x1Ø5c/0.14(1.55)

V 33 --- Grupo: 1

Tramo nº 1 (*P43-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.119 cm.
(C/4203)

Arm.sup: 0.2 ----- 1.2 1.9 0.2(0.17)
2.4(4.66)

Arm.inf: ----- 1.2 1.7 1.6 1.2 ----- 1.2(0.70) 1.7(2.20)

Moment.: -0.3 1.1 2.3 2.3 1.0 -1.5 -3.7 -0.4(0.11) 1.1(0.83) 2.4(2.20)
-3.9(4.89)

Cortant.: ----- 2.2 0.7 -0.8 -2.3 -3.8 ----- 3.0(x= 0.40)
-4.6(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 4.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+4.07=4.15) ----- 2Ø12.5(1.60>>)

Arm.Inferior: 2Ø12.5(0.15D+5.70=5.85)

Estribos: 34x1Ø5c/0.14(4.75)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.055 cm.
(C/9103)

Arm.sup: 1.9 1.2 ----- 1.2 2.6 2.0(0.11)
3.1(4.71)

Arm.inf: ----- 1.2 1.3 1.2 ----- 1.3(2.47)

Moment.: -3.7 -1.0 1.1 1.8 1.2 -1.2 -5.0 -3.7(x= 0.00) 1.8(x= 2.47)
-5.1(x= 4.89)

Cortant.: ----- 3.1 1.6 0.1 -1.4 -6.5 ----- 3.9(x= 0.40)

-7.3(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.01 ----- Extr. apoio: 0.00(x= 0.40) 0.01(x= 4.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.80=3.40) ----- 2Ø12.5(1.60>>), 1Ø10(1.15>>)

Arm.Montagem: 2Ø5(2.10)

Arm.Inferior: 2Ø12.5(5.35)

Estribos: 26x1Ø5c/0.14(3.65), 11x1Ø5c/0.1(1.10)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.048 cm. (C/8358)

Arm.sup: 2.6 1.2 ----- 1.2 2.0 2.6(0.06)
2.0(3.94)

Arm.inf: ----- 1.7 2.0 1.2 ----- 2.3(1.55)

Moment.: -5.0 -1.6 2.4 2.8 1.5 -1.2 -3.8 -5.0(x= 0.00) 3.3(x= 1.55)
-3.8(x= 4.00)

Cortant.: ----- 5.5 4.3 -1.4 -2.6 -3.8 ----- 6.0(x= 0.40)
-4.2(x= 3.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 3.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.50=3.10), 1Ø10(<<1.15+0.80=1.95) ----- 2Ø12.5(1.60>>)

Arm.Montagem: 2Ø5(1.35)

Arm.Inferior: 2Ø12.5(4.50)

Estribos: 27x1Ø5c/0.14(3.75)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.161 cm. (C/3737)

Arm.sup: 2.0 1.2 ----- 1.2 2.0 2.5(0.34)
2.5(5.66)

Arm.inf: ----- 1.2 1.9 2.5 1.9 1.2 ----- 1.2(1.14) 2.5(3.00)
1.2(4.86)

Moment.: -3.8 -1.0 2.6 3.6 2.6 -1.0 -3.8 -4.0(0.17) 0.5(1.14) 3.6(3.00)
0.5(4.86) -3.9(5.83)

Cortant.: ----- 3.6 1.8 0.0 -1.8 -3.6 ----- 4.7(x= 0.40)
-4.7(x= 5.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 5.60) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.75=3.35) ----- 2Ø12.5(1.76>>)

Arm.Montagem: 2Ø5(2.95)

Arm.Inferior: 2Ø16(6.35)

Estribos: 41x1Ø5c/0.14(5.70)

Tramo nº 5 (*P40-V 1*) (C= 1.67) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.097 cm.
(C/1730)

Arm.sup: 2.0 1.9 1.5 1.2 1.2 1.2 1.2 2.0(0.06)
1.2(1.16)

Arm.inf: ----- 0.0(1.61)

Moment.: -3.8 -2.9 -2.0 -1.3 -0.7 -0.2 -0.0 -3.8(0.00) -0.2(1.32)
0.0(1.61) -0.0(1.67)

Cortant.: ----- 2.9 2.4 1.9 1.4 0.0 3.2(x= 0.40)
-0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.40) 0.00(x=
1.58) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.76+1.65+0.15D=3.55) -----

Arm.Inferior: 2Ø8(1.80+0.10D=1.90)

Estribos: 11x1Ø5c/0.14(1.50)

V 34 --- Grupo: 1

Tramo nº 1 (*PE4-PE4*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.120 cm.
(C/4179)

Arm.sup: 0.2 ----- 1.2 1.8 0.2(0.17)
2.4(4.66)

Arm.inf: ----- 1.2 1.7 1.6 1.2 ----- 1.2(0.70) 1.7(2.20)

Moment.: -0.3 1.1 2.3 2.3 1.0 -1.5 -3.4 -0.4(0.11) 1.1(0.83) 2.4(2.20)
-3.7(4.83)

Cortant.: ----- 2.2 0.7 -0.8 -2.3 -3.8 ----- 3.0(x= 0.40)
-4.6(x= 4.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x=
4.60) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+4.12=4.20) ----- 2Ø12.5(1.60>>)

Arm.Inferior: 2Ø12.5(0.15D+5.60=5.75)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 2 (*PE4-PE4*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.041 cm.
(C/9817)

Arm.sup: 1.8 1.2 ----- 0.1 1.8(0.06)
0.2(3.83)

Arm.inf: ----- 1.2 1.2 1.2 1.2 ----- 1.2(2.23)
1.2(3.37)

Moment.: -3.4 -1.1 0.5 1.3 1.3 0.5 -0.2 -3.4(0.00) 1.4(2.23)
0.5(3.33) -0.3(3.89)

Cortant.: ----- 3.0 1.8 0.6 -0.6 -1.8 ----- 3.5(x= 0.40)
-2.3(x= 3.60)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.40) 0.00(x= 3.60)
Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.60+1.45=3.05) ----- 2Ø6.3(3.12+0.08D=3.20)

Arm.Inferior: 2Ø10(4.48+0.12D=4.60)

Estribos: 28x1Ø5c/0.14(3.80)

Armadura de vigas
Obra: TRF-4 VARAS VERTICAL PARTE 1
Grupo no 2 Piso 2 --- Pisoigual 1

V 1 --- Grupo: 2

Tramo nº 1 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.468 cm.
(C/1069)

Arm.sup: 0.2 ----- 1.5 7.5 0.2(0.03)
8.0(4.89)

Arm.inf: ----- 3.6 6.0 6.0 3.8 ----- 4.2(0.99) 6.3(2.15)
1.5(4.01)

Moment.: -0.3 6.4 10.7 10.9 6.8 -1.7 -14.8 -0.4(0.03) 7.5(0.99) 11.3(2.15)
0.2(4.01)-14.9(4.96)

Cortant.: ----- 7.1 2.6 -2.3 -7.4 -13.2 ----- 12.0(x= 0.10)
-22.4(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.85)
Lim.: 0.72

Arm.Superior: 2Ø12.5(0.15D+3.60=3.75) ----- 3Ø16(1.85>>), 2Ø12.5(1.50>>)

Arm.Inferior: 3Ø16(0.19D+5.56=5.75), 1Ø12.5(5.20)

Estribos: 19x1Ø12.5c/0.22(4.00), 4x1Ø12.5c/0.21(0.80)

Tramo nº 2 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.237 cm. (C/2111)

Arm.sup: 7.5 1.6 ----- 1.5 6.7 7.5(0.04)
6.8(4.94)

Arm.inf: ----- 1.5 4.9 6.6 5.9 2.1 ----- 1.8(0.99) 6.7(2.65)
3.0(4.01)

Moment.: -14.8 -2.9 8.9 11.9 10.6 3.7 -13.3 -14.8(0.00) 3.3(0.99) 12.0(2.65)
5.5(4.01)-13.3(5.00)

Cortant.: ----- 11.4 6.0 1.1 -4.6 -11.8 ----- 17.7(x= 0.15)
-20.7(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x= 4.85) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.85+1.90=3.75), 2Ø12.5(<<1.50+1.35=2.85) ----- 3Ø16(1.60>>), 1Ø10(1.10>>), 1Ø10(1.10>>)

Arm.Montagem: 2Ø10(2.00)

Arm.Inferior: 3Ø16(5.80), 1Ø10(5.35)

Estribos: 5x1Ø10c/0.18(0.80), 14x1Ø10c/0.22(3.20), 6x1Ø10c/0.15(0.80)

Tramo nº 3 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.329 cm. (C/1519)

Arm.sup: 6.7 1.5 ----- 1.5 5.9 6.8(0.06)
6.2(4.91)

Arm.inf: ----- 1.5 5.6 6.6 5.1 1.5 ----- 2.4(0.99) 6.6(2.40)
2.1(4.01)

Moment.: -13.3 2.4 10.0 11.8 9.1 2.2 -11.8 -13.3(0.00) 4.2(0.99) 11.9(2.40)
3.8(4.01)-11.9(4.98)

Cortant.: ----- 12.6 5.4 -0.6 -5.6 -10.9 ----- 19.7(x= 0.15)
-18.7(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x= 4.85) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.60+1.60=3.20), 1Ø10(<<1.10+1.15=2.25), 1Ø10(<<1.10+1.15=2.25) ----- 3Ø16(1.60>>), 1Ø10(1.25>>), 1Ø10(1.25>>)

Arm.Montagem: 2Ø8(2.25)

Arm.Inferior: 3Ø16(5.50), 1Ø10(5.30)

Estribos: 9x1Ø8c/0.1(0.90), 21x1Ø8c/0.15(3.10), 8x1Ø8c/0.1(0.80)

Tramo nº 4 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.197 cm.

(C/2543)

Arm.sup: 5.9 1.5 ----- 1.5 7.1 6.0(0.04)
7.2(4.94)

Arm.inf: ----- 1.8 5.1 6.1 4.7 1.5 ----- 2.6(0.99) 6.1(2.40)
1.9(4.01)

Moment.: -11.8 3.2 9.3 10.9 8.4 -2.4 -14.1 -11.8(0.00) 4.7(0.99) 11.0(2.40)
3.4(4.01)-14.1(5.00)

Cortant.: ----- 10.2 4.5 -0.5 -5.4 -10.8 ----- 16.7(x= 0.15)
-18.8(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x=
4.85) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.60+1.65=3.25), 1Ø10(<<1.25+1.20=2.45), 1Ø10(<<1.25+1.20=2.45)
----- 3Ø16(1.80>>), 1Ø10(1.20>>), 1Ø10(1.20>>)

Arm.Montagem: 2Ø8(2.05)

Arm.Inferior: 3Ø16(5.75), 1Ø10(3.95)

Estribos: 7x1Ø8c/0.12(0.80), 21x1Ø8c/0.15(3.20), 8x1Ø8c/0.1(0.80)

Tramo nº 5 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.476 cm.
(C/1051)

Arm.sup: 7.1 1.5 ----- 0.1 7.5(0.11)
0.1(4.97)

Arm.inf: ----- 3.6 5.9 5.9 3.5 ----- 1.5(0.99) 6.2(2.90)
4.1(4.01)

Moment.: -14.1 -1.9 6.5 10.6 10.5 6.4 -0.2 -14.1(0.02) 0.0(0.99) 11.1(2.90)
7.4(4.01) -0.3(4.97)

Cortant.: ----- 12.8 7.3 2.4 -2.5 -7.0 ----- 19.3(x= 0.15)
-9.5(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x=
4.90) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.80+1.70=3.50), 1Ø10(<<1.20+1.30=2.50), 1Ø10(<<1.20+1.30=2.50)
----- 2Ø8(3.65+0.10D=3.75)

Arm.Inferior: 3Ø16(5.36+0.19D=5.55), 1Ø10(3.95)

Estribos: 10x1Ø8c/0.1(1.00), 26x1Ø8c/0.15(3.80)

V 2 --- Grupo: 2

Tramo nº 1 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.457 cm.
(C/1094)

Arm.sup: 7.2(4.86)	0.1	-----	-----	-----	-----		1.5	6.6	0.1(0.03)	
Arm.inf: -----	3.3	5.8	5.9	3.5	-----	-----		3.9(0.99)	6.2(2.15)	
Moment.: -13.7(4.94)	-0.2	5.9	10.4	10.6	6.2	-2.6	-13.5	-0.3(0.03)	7.0(0.99)	11.1(2.15)
Cortant.: ----- -17.7(x= 4.80)		7.2	2.8	-2.4	-7.7	-13.0	-----		8.8(x= 0.10)	
Torsores: ----- 4.80) Lim.: 0.72	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio:	0.00(x= 0.10)	0.00(x=	

Arm.Superior: 2Ø8(0.10D+3.80=3.90) ----- 3Ø16(1.75>>), 1Ø12.5(1.20>>)

Arm.Inferior: 3Ø16(0.19D+5.36=5.55), 1Ø10(0.12D+5.18=5.30)

Estribos: 26x1Ø8c/0.15(3.81), 9x1Ø8c/0.11(0.99)

Tramo nº 2 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.168 cm.
(C/2982)

Arm.sup: 4.9(4.94)	6.6	1.8	-----	-----	-----		1.5	4.8	6.6(0.03)	
Arm.inf: ----- 1.9(4.01)	1.5	3.9	5.4	4.4	1.5	-----		1.5(0.99)	5.4(2.65)	
Moment.: 3.5(4.01)-10.0(5.00)	-13.5	-3.3	7.0	9.7	8.0	2.0	-10.0	-13.5(0.00)	1.6(0.99)	9.7(2.65)
Cortant.: ----- -12.4(x= 4.80)		10.4	5.6	0.6	-4.5	-9.1	-----		13.7(x= 0.20)	
Torsores: ----- 4.80) Lim.: 0.72	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio:	0.00(x= 0.20)	0.00(x=	

Arm.Superior: 3Ø16(<<1.75+1.85=3.60), 1Ø12.5(<<1.20+1.00=2.20) ----- 3Ø16(1.70>>)

Arm.Montagem: 2Ø6.3(1.90)

Arm.Inferior: 2Ø16(5.50), 2Ø10(3.15)

Estribos: 15x1Ø6.3c/0.1(1.50), 9x1Ø6.3c/0.22(1.98), 12x1Ø6.3c/0.11(1.32)

Tramo nº 3 (*P40-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.224 cm.
(C/2231)

Arm.sup: 5.2(4.91)	4.8	1.5	-----	-----	-----		1.5	5.1	5.1(0.11)	
Arm.inf: ----- 1.5(4.01)	1.5	4.1	5.3	4.1	1.5	-----		1.5(0.99)	5.3(2.45)	
Moment.: 2.6(4.01)-10.1(5.00)	-10.0	-1.5	7.4	9.6	7.4	-1.2	-10.1	-10.0(0.03)	2.4(0.99)	9.6(2.45)

Cortant.: ----- 9.8 5.1 0.0 -5.0 -9.5 ----- 13.1(x= 0.20)
 -12.7(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.20) 0.00(x= 4.85) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.70+1.70=3.40) ----- 3Ø16(1.70>>)

Arm.Montagem: 2Ø6.3(2.10)

Arm.Inferior: 3Ø16(5.40), 1Ø12.5(3.05)

Estribos: 14x1Ø6.3c/0.1(1.40), 9x1Ø6.3c/0.22(1.97), 13x1Ø6.3c/0.11(1.43)

Tramo nº 4 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.235 cm.
 (C/2129)

Arm.sup: 5.1 1.5 ----- 1.5 6.1 5.2(0.09)
 6.2(4.97)

Arm.inf: ----- 1.5 4.7 5.7 4.2 1.5 ----- 2.0(0.99) 5.7(2.40)
 1.5(4.01)

Moment.: -10.1 2.1 8.5 10.3 7.6 -2.2 -11.9 -10.1(0.00) 3.7(0.99) 10.3(2.40)
 2.3(4.01)-11.9(5.00)

Cortant.: ----- 9.8 4.8 -0.5 -5.6 -10.1 ----- 13.2(x= 0.15)
 -12.4(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x= 4.90) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.70+1.60=3.30) ----- 3Ø16(1.85>>), 1Ø10(1.15>>)

Arm.Montagem: 2Ø6.3(2.00)

Arm.Inferior: 2Ø16(5.60), 1Ø16(3.40)

Estribos: 14x1Ø6.3c/0.1(1.40), 8x1Ø6.3c/0.22(1.86), 14x1Ø6.3c/0.11(1.54)

Tramo nº 5 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.412 cm.
 (C/1213)

Arm.sup: 6.1 1.5 ----- 0.1 6.4(0.09)
 0.1(4.97)

Arm.inf: ----- 3.1 5.3 5.4 3.2 ----- 5.7(2.90)
 3.8(4.01)

Moment.: -11.9 -2.4 5.5 9.6 9.7 5.8 -0.2 -11.9(0.03) 10.2(2.90)
 6.8(4.01) -0.2(4.97)

Cortant.: ----- 10.8 7.0 2.4 -2.2 -6.5 ----- 12.3(x= 0.15)
 -7.9(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=

4.90) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.85+1.85=3.70), 1Ø10(<<1.15+1.25=2.40) -----
 2Ø6.3(3.62+0.08D=3.70)

Arm.Inferior: 2Ø16(5.46+0.19D=5.65), 1Ø16(4.20)

Estribos: 15x1Ø6.3c/0.11(1.65), 12x1Ø6.3c/0.2(2.35), 5x1Ø6.3c/0.19(0.80)

V 3 --- Grupo: 2

Tramo nº 1 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.267 cm.
 (C/1869)

Arm.sup: ----- 1.5 4.4 0.1(0.03)
 5.0(4.85)

Arm.inf: ----- 2.1 3.9 3.9 2.2 ----- 2.5(0.99) 4.1(2.15)

Moment.: -0.2 3.8 7.0 7.1 4.0 -2.2 -9.0 -0.2(0.03) 4.6(0.99) 7.4(2.15)
 -9.3(4.92)

Cortant.: ----- 4.8 2.0 -1.7 -5.4 -8.6 ----- 6.0(x= 0.10)
 -11.0(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.82) Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.62=3.70) ----- 2Ø16(1.80>>), 1Ø12.5(1.35>>)

Arm.Inferior: 2Ø16(0.19D+5.31=5.50), 1Ø10(3.00)

Estribos: 16x1Ø6.3c/0.22(3.42), 10x1Ø6.3c/0.13(1.30)

Tramo nº 2 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.099 cm.
 (C/5029)

Arm.sup: 4.4 1.5 ----- 1.5 3.5 4.4(0.03)
 3.5(4.97)

Arm.inf: ----- 1.5 2.7 3.7 3.0 1.5 ----- 1.5(0.99) 3.8(2.65)
 1.5(4.01)

Moment.: -9.0 -2.0 4.9 6.7 5.4 1.2 -7.0 -9.0(0.00) 1.1(0.99) 6.8(2.65)
 2.2(4.01) -7.0(5.00)

Cortant.: ----- 7.0 3.9 0.3 -3.3 -6.3 ----- 8.8(x= 0.18)
 -8.2(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
 4.82) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.80+1.85=3.65), 1Ø12.5(<<1.35+1.20=2.55) ----- 2Ø16(1.65>>)

Arm.Montagem: 2Ø5(1.95)

Arm.Inferior: 3Ø16(5.30)

Estribos: 8x1Ø5c/0.11(0.80), 22x1Ø5c/0.14(3.05), 7x1Ø5c/0.12(0.80)

Tramo nº 3 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.142 cm.
(C/3518)

Arm.sup: 3.5 1.5 ----- 1.5 2.5 3.7(0.13)
2.8(4.87)

Arm.inf: ----- 1.5 2.6 3.6 2.8 1.5 ----- 1.5(0.99) 3.6(2.61)
1.5(4.01)

Moment.: -7.0 -1.2 4.7 6.4 5.0 0.7 -5.0 -7.1(0.05) 1.0(0.99) 6.4(2.61)
1.7(4.01) -5.2(4.90)

Cortant.: ----- 7.0 3.8 0.2 -3.4 -6.0 ----- 8.8(x= 0.18)
-7.2(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.65+1.70=3.35) ----- 2Ø16(1.55>>)

Arm.Montagem: 2Ø5(2.20)

Arm.Inferior: 2Ø16(5.55)

Estribos: 8x1Ø5c/0.11(0.80), 28x1Ø5c/0.14(3.85)

Tramo nº 4 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.044 cm.
(C/11428)

Arm.sup: 2.5 1.5 ----- 1.5 4.9 2.4(0.03)
4.9(4.99)

Arm.inf: ----- 1.5 2.4 3.1 2.9 1.5 ----- 1.5(0.99) 3.3(3.15)
1.5(4.01)

Moment.: -5.0 1.5 4.3 5.7 5.3 -2.5 -9.5 -5.0(0.00) 2.1(0.99) 6.0(3.15)
1.4(4.01) -9.5(5.00)

Cortant.: ----- 3.5 2.3 1.1 -3.1 -7.0 ----- 3.9(x= 0.18)
-8.7(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.90) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.55+1.85=3.40) ----- 3Ø16(2.00>>)

Arm.Montagem: 2Ø5(1.60)

Arm.Inferior: 2Ø16(5.60)

Estribos: 28x1Ø5c/0.14(3.88), 7x1Ø5c/0.12(0.84)

Tramo nº 5 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.447 cm.
(C/1119)

Arm.sup: 4.9 1.5 ----- 0.1 5.2(0.09)
0.2(4.97)

Arm.inf: ----- 3.4 5.5 5.4 3.4 ----- 1.5(0.99) 5.7(2.90)
3.9(4.01)

Moment.: -9.5 -1.0 6.1 9.8 9.8 6.1 -0.3 -9.7(0.04) 0.6(0.99) 10.3(2.90)
7.0(4.01) -0.3(4.97)

Cortant.: ----- 9.8 6.3 2.1 -2.2 -6.2 ----- 12.0(x= 0.10)
-10.1(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90)
Lim.: 0.72

Arm.Superior: 3Ø16(<<2.00+1.65=3.65) ----- 2Ø6.3(3.77+0.08D=3.85)

Arm.Inferior: 2Ø16(5.41+0.19D=5.60), 1Ø16(4.25)

Estribos: 14x1Ø6.3c/0.11(1.54), 11x1Ø6.3c/0.22(2.46), 7x1Ø6.3c/0.13(0.80)

V 4 --- Grupo: 2

Tramo nº 1 (*V 1-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.059 cm.
(C/6129)

Arm.sup: ----- 1.5(0.00)
0.1(3.58)

Arm.inf: ----- 1.5 1.5 1.6 1.5 1.5 ----- 1.5(0.50) 1.6(1.75)
1.5(3.00)

Moment.: -0.0 1.6 2.6 2.9 2.5 1.5 -0.1 -0.0(0.00) 1.6(0.60) 3.0(1.75)
1.5(3.00) -0.1(3.58)

Cortant.: 3.3 2.3 1.1 -0.1 -1.2 -2.4 ----- 3.3(x= 0.00)
-3.4(x= 3.50)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.00) 0.00(x= 3.50)
Lim.: 0.72

Arm.Superior: 2Ø10(0.12D+3.76+0.12D=4.00) -----

Arm.Inferior: 2Ø12.5(0.15D+3.76+0.15D=4.06)

Estribos: 25x1Ø5c/0.14(3.40)

V 5 --- Grupo: 2

Tramo nº 1 (*P41-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.351 cm.

(C/1424)

Arm.sup: 0.1 ----- 1.7 5.8 0.1(0.03)
6.5(4.85)

Arm.inf: ----- 2.8 4.9 4.9 2.7 ----- 3.3(0.99) 5.2(2.15)

Moment.: -0.2 5.0 8.7 8.8 4.8 -3.1 -11.8 -0.3(0.03) 5.9(0.99) 9.3(2.15)
-12.2(4.92)

Cortant.: ----- 5.9 2.3 -2.3 -6.9 -11.0 ----- 9.1(x= 0.10)
-13.6(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
4.82) Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.52=3.60) ----- 2Ø16(1.90>>), 2Ø12.5(1.35>>)

Arm.Inferior: 3Ø16(0.19D+5.41=5.60)

Estribos: 6x1Ø6.3c/0.14(0.80), 11x1Ø6.3c/0.21(2.32), 16x1Ø6.3c/0.1(1.60)

Tramo nº 2 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.188 cm.
(C/2654)

Arm.sup: 5.8 1.5 ----- 1.5 4.4 5.8(0.03)
4.5(4.92)

Arm.inf: ----- 1.5 3.7 5.1 4.0 1.5 ----- 1.5(0.99) 5.1(2.65)
1.5(4.01)

Moment.: -11.8 -2.5 6.6 9.1 7.3 1.4 -8.9 -11.8(0.00) 1.5(0.99) 9.2(2.65)
2.8(4.01) -8.9(5.00)

Cortant.: ----- 9.5 5.4 0.4 -4.6 -8.7 ----- 11.6(x= 0.18)
-10.7(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.90+1.85=3.75), 2Ø12.5(<<1.35+1.10=2.45) ----- 2Ø16(1.70>>),
1Ø10(1.40>>)

Arm.Montagem: 2Ø6.3(1.90)

Arm.Inferior: 3Ø16(5.35)

Estribos: 12x1Ø6.3c/0.12(1.44), 9x1Ø6.3c/0.22(2.04), 9x1Ø6.3c/0.13(1.17)

Tramo nº 3 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.187 cm.
(C/2675)

Arm.sup: 4.4 1.5 ----- 1.5 4.5 4.6(0.10)
4.6(4.92)

Arm.inf: ----- 1.5 3.6 4.7 3.6 1.5 ----- 1.5(0.99) 4.7(2.40)
1.5(4.01)

Moment.: -8.9 -1.4 6.5 8.5 6.4 -1.5 -9.1 -9.0(0.03) 2.0(0.99) 8.5(2.40)
1.9(4.01) -9.1(5.00)

Cortant.: ----- 8.6 4.6 -0.1 -4.7 -8.4 ----- 10.6(x= 0.18)
-10.3(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.82) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.70+1.70=3.40), 1Ø10(<<1.40+1.45=2.85) ----- 2Ø16(1.70>>), 1Ø10(1.45>>)

Arm.Montagem: 2Ø6.3(2.05)

Arm.Inferior: 2Ø16(5.45), 1Ø12.5(3.75)

Estribos: 9x1Ø6.3c/0.14(1.26), 10x1Ø6.3c/0.22(2.13), 9x1Ø6.3c/0.14(1.26)

Tramo nº 4 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.203 cm. (C/2464)

Arm.sup: 4.5 1.5 ----- 1.5 5.3 4.7(0.13)
5.4(4.96)

Arm.inf: ----- 1.5 4.0 5.2 4.0 1.5 ----- 1.5(0.99) 5.2(2.40)
1.5(4.01)

Moment.: -9.1 -1.5 7.1 9.3 7.1 -1.7 -10.3 -9.2(0.03) 2.4(0.99) 9.3(2.40)
2.3(4.01)-10.3(5.00)

Cortant.: ----- 8.9 4.9 0.2 -5.0 -9.2 ----- 10.9(x= 0.18)
-11.1(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.90) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.70+1.75=3.45), 1Ø10(<<1.45+1.45=2.90) ----- 2Ø16(1.80>>), 1Ø16(1.05>>)

Arm.Montagem: 2Ø6.3(1.95)

Arm.Inferior: 3Ø16(5.40)

Estribos: 10x1Ø6.3c/0.13(1.30), 9x1Ø6.3c/0.22(1.99), 11x1Ø6.3c/0.13(1.43)

Tramo nº 5 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.313 cm. (C/1599)

Arm.sup: 5.3 1.5 ----- 5.5(0.09)
0.1(4.97)

Arm.inf: ----- 2.5 4.4 4.3 2.5 ----- 4.6(2.90)
2.9(4.01)

Moment.: -10.3 -2.2 4.5 7.9 7.8 4.5 -0.1 -10.3(0.01) 8.3(2.90)
5.3(4.01) -0.2(4.97)

Cortant.: ----- 9.3 5.9 1.9 -2.0 -5.3 ----- 10.3(x= 0.15)
 -6.0(x= 4.65)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.80+1.90=3.70), 1Ø16(<<1.05+1.10=2.15) -----
 2Ø6.3(3.47+0.08D=3.55)

Arm.Inferior: 2Ø16(5.41+0.19D=5.60), 1Ø12.5(3.75)

Estribos: 11x1Ø6.3c/0.14(1.54), 15x1Ø6.3c/0.22(3.26)

V 6 --- Grupo: 2

Tramo nº 1 (*V 1-V 1*) (C= 3.63) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.171 cm.
 (C/2122)

Arm.sup: -----

Arm.inf: ----- 1.7 3.2 3.8 3.4 2.2 ----- 2.1(0.72) 3.8(1.90)
 2.4(2.92)

Moment.: 0.0 3.1 5.7 6.8 6.2 3.9 0.0 0.0(0.00) 3.7(0.72) 6.8(1.90)
 4.4(2.92) -0.0(3.63)

Cortant.: 5.2 4.8 2.8 0.3 -2.3 -4.8 -7.2 5.4(x= 0.11)
 -7.2(x= 3.63)

Torsores: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.00)
 0.00(x= 3.63) Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.76+0.08D=3.92) -----

Arm.Inferior: 3Ø16(0.19D+3.76+0.19D=4.14)

Estribos: 25x1Ø5c/0.14(3.43)

V 7 --- Grupo: 2

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.307 cm.
 (C/1630)

Arm.sup: ----- 1.5 4.0 0.1(0.03)
 4.4(4.87)

Arm.inf: ----- 2.5 4.0 4.0 2.4 ----- 2.9(0.99) 4.2(2.10)

Moment.: -0.2 4.6 7.3 7.2 4.2 -1.6 -8.0 -0.2(0.03) 5.3(0.99) 7.6(2.10)
 -8.2(4.94)

Cortant.: ----- 4.2 1.3 -1.8 -4.9 -7.8 ----- 6.3(x= 0.10)
 -8.9(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.01(x=

4.85) Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.67=3.75) ----- 2Ø12.5(1.75>>), 1Ø16(1.50>>)

Arm.Inferior: 2Ø16(0.19D+5.26=5.45), 1Ø10(3.00)

Estribos: 26x1Ø5c/0.14(3.59), 11x1Ø5c/0.11(1.21)

Tramo nº 2 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.090 cm.
(C/5558)

Arm.sup: 4.0 1.5 ----- 1.5 3.2 4.0(0.02)
3.2(4.92)

Arm.inf: ----- 1.5 2.6 3.5 2.8 1.5 ----- 1.5(0.99) 3.5(2.60)
1.5(4.01)

Moment.: -8.0 -2.0 4.6 6.3 5.1 -1.1 -6.4 -8.0(0.00) 1.1(0.99) 6.3(2.60)
2.0(4.01) -6.4(5.00)

Cortant.: ----- 6.1 3.4 0.3 -2.8 -5.6 ----- 6.7(x= 0.15)
-6.1(x= 4.40)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.15) 0.01(x=
4.82) Lim.: 0.72

Arm.Superior: 2Ø12.5(<<1.75+1.85=3.60), 1Ø16(<<1.50+1.25=2.75) ----- 2Ø12.5(1.75>>),
1Ø12.5(1.05>>)

Arm.Montagem: 2Ø5(1.90)

Arm.Inferior: 2Ø12.5(5.45), 1Ø12.5(3.25)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 3 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.145 cm.
(C/3438)

Arm.sup: 3.2 1.5 ----- 1.5 2.8 3.4(0.15)
2.9(4.94)

Arm.inf: ----- 2.4 3.5 2.8 1.5 ----- 1.5(0.99) 3.5(2.65)
1.5(4.01)

Moment.: -6.4 -1.6 4.2 6.2 5.1 1.1 -5.4 -6.5(0.05) 0.6(0.99) 6.3(2.65)
2.0(4.01) -5.4(5.00)

Cortant.: ----- 6.0 3.6 0.5 -2.8 -5.7 ----- 6.3(x= 0.65)
-6.4(x= 4.65)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.18) 0.01(x=
4.90) Lim.: 0.72

Arm.Superior: 2Ø12.5(<<1.75+1.80=3.55), 1Ø12.5(<<1.05+1.20=2.25) ----- 2Ø12.5(1.55>>),
1Ø10(1.00>>)

Arm.Montagem: 2Ø5(2.15)

Arm.Inferior: 2Ø12.5(5.40), 1Ø12.5(3.25)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 4 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.090 cm.
(C/5560)

Arm.sup: 2.8 1.5 ----- 1.6 4.9 2.9(0.09)
4.9(4.96)

Arm.inf: ----- 1.5 3.3 3.7 2.6 1.5 ----- 1.7(0.99) 3.8(2.36)
1.5(4.01)

Moment.: -5.4 2.2 5.9 6.7 4.6 -2.8 -9.7 -5.4(0.00) 3.1(0.99) 6.8(2.36)
0.9(4.01) -9.7(5.00)

Cortant.: ----- 5.2 2.4 -0.7 -3.9 -6.8 ----- 6.2(x= 0.40)
-8.1(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.02(x= 0.10) 0.01(x=
4.85) Lim.: 0.72

Arm.Superior: 2Ø12.5(<<1.55+1.60=3.15), 1Ø10(<<1.00+1.00=2.00) ----- 3Ø16(2.00>>)

Arm.Montagem: 2Ø5(1.85)

Arm.Inferior: 3Ø16(5.30)

Estribos: 29x1Ø5c/0.14(4.00), 7x1Ø5c/0.13(0.80)

Tramo nº 5 (*P42-P43*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.384 cm.
(C/1304)

Arm.sup: 4.9 1.5 ----- 4.6 5.2(0.11)
4.8(4.92)

Arm.inf: ----- 1.5 4.6 5.8 4.7 1.5 ----- 1.5(0.99) 5.8(2.56)
2.0(4.01)

Moment.: -9.7 -1.3 8.2 10.4 8.5 2.0 -9.2 -9.8(0.04) 1.3(0.99) 10.4(2.56)
3.6(4.01) -9.2(4.96)

Cortant.: ----- 11.3 8.8 0.3 -4.8 -10.5 ----- 12.8(x= 1.63)
-16.4(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x=
4.85) Lim.: 0.72

Arm.Superior: 3Ø16(<<2.00+1.65=3.65) ----- 2Ø12.5(1.55>>), 2Ø12.5(1.25>>)

Arm.Montagem: 2Ø8(2.30)

Arm.Inferior: 2Ø16(5.70), 1Ø16(3.90)

Estribos: 27x1Ø8c/0.15(4.00), 7x1Ø8c/0.12(0.80)

Tramo nº 6 (*P43-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= -0.004 cm.
(C/-93156)

Arm.sup: 4.6 2.8 1.5 ----- 4.6(0.04)
0.0(3.58)

Arm.inf: ----- 1.5 1.5 2.0 1.8 0.5 2.0(2.49)
1.9(2.88)

Moment.: -9.2 -5.1 -1.4 2.7 3.6 3.2 1.0 -9.2(0.00) 3.6(2.49)
3.4(2.88) -0.1(3.58)

Cortant.: ----- 6.2 4.6 2.6 0.6 -1.3 ----- 6.2(x= 0.65)
-2.0(x= 3.40)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.15) 0.00(x= 3.50)
Lim.: 0.72

Arm.Superior: 2Ø12.5(<<1.55+2.35=3.90), 2Ø12.5(<<1.25+1.40=2.65) -----
2Ø6.3(1.62+0.08D=1.70)

Arm.Inferior: 2Ø12.5(3.90+0.15D=4.05)

Estribos: 25x1Ø5c/0.14(3.40)

V 8 --- Grupo: 2

Tramo nº 1 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.296 cm.
(C/1690)

Arm.sup: ----- 1.5 5.0 0.1(0.03)
5.1(4.94)

Arm.inf: ----- 2.5 4.0 3.9 2.2 ----- 2.9(0.99) 4.1(2.06)
1.5(4.01)

Moment.: -0.2 4.5 7.1 7.0 4.0 -1.3 -9.6 -0.2(0.03) 5.2(0.99) 7.4(2.06)
0.0(4.01) -9.6(5.00)

Cortant.: ----- 4.1 1.3 -1.7 -4.5 -8.2 ----- 6.7(x= 0.10)
-11.8(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90)
Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.72=3.80) ----- 2Ø16(1.70>>), 1Ø12.5(1.05>>)

Arm.Inferior: 2Ø16(0.19D+5.41=5.60), 1Ø10(3.00)

Estribos: 17x1Ø6.3c/0.22(3.60), 10x1Ø6.3c/0.12(1.20)

Tramo nº 2 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.206 cm.

(C/2433)

Arm.sup: 3.3(4.91)	5.0	1.5	-----	-----	-----	-----	3.1	5.1(0.06)
Arm.inf: 1.9(4.01)	-----	1.5	3.2	4.4	3.8	1.5	-----	1.5(0.99) 4.5(2.65)
Moment.: 3.4(4.01) -6.3(4.96)	-9.6	-1.5	5.8	8.0	6.8	2.3	-6.3	-9.6(0.00) 1.5(0.99) 8.0(2.65)
Cortant.: -11.0(x= 4.85)	-----	8.3	4.5	0.6	-3.3	-7.2	-----	11.5(x= 0.10)
Torsores: 4.85) Lim.: 0.72	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.01(x= 0.10) 0.00(x=

Arm.Superior: 2Ø16(<<1.70+1.75=3.45), 1Ø12.5(<<1.05+1.05=2.10) ----- 2Ø12.5(1.45>>), 1Ø12.5(1.05>>)

Arm.Montagem: 2Ø6.3(2.25)

Arm.Inferior: 2Ø12.5(5.60), 1Ø16(5.25)

Estribos: 10x1Ø6.3c/0.12(1.20), 12x1Ø6.3c/0.22(2.64), 8x1Ø6.3c/0.12(0.96)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.006 cm. (C/70690)

Arm.sup: 4.3(3.98)	3.1	1.5	-----	-----	-----	1.6	4.3	3.2(0.02)
Arm.inf: 1.5(3.20)	-----	1.5	2.5	2.9	2.1	1.5	-----	1.5(0.79) 2.9(1.90)
Moment.: 1.3(3.20) -8.5(4.00)	-6.3	-1.7	4.4	5.1	3.9	-2.8	-8.5	-6.3(0.00) 2.3(0.79) 5.2(1.90)
Cortant.: -9.6(x= 3.85)	-----	5.6	2.6	-0.4	-3.4	-6.6	-----	7.9(x= 0.15)
Torsores: 3.85) Lim.: 0.72	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.15) 0.00(x=

Arm.Superior: 2Ø12.5(<<1.45+1.70=3.15), 1Ø12.5(<<1.05+0.95=2.00) ----- 2Ø16(2.50>>), 1Ø10(0.95>>)

Arm.Inferior: 2Ø12.5(4.55), 1Ø10(2.45)

Estribos: 7x1Ø5c/0.13(0.80), 16x1Ø5c/0.14(2.20), 8x1Ø5c/0.1(0.80)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.546 cm. (C/1099)

Arm.sup: 2.8(5.87)	4.3	1.5	-----	-----	-----	-----	2.3	4.8(0.13)
-----------------------	-----	-----	-------	-------	-------	-------	-----	-----------

Arm.inf: ----- 3.4 4.9 4.1 1.5 ----- 1.5(1.19) 5.0(3.15)
 1.9(4.81)

Moment.: -8.5 -0.5 6.1 8.8 7.4 2.1 -4.7 -8.9(0.09) 1.0(1.19) 8.9(3.15)
 3.4(4.81) -5.1(5.91)

Cortant.: ----- 7.7 4.3 0.6 -3.0 -6.4 ----- 9.0(x= 0.15)
 -8.0(x= 5.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.15) 0.01(x=
 5.85) Lim.: 0.72

Arm.Superior: 2Ø16(<<2.50+1.80=4.30), 1Ø10(<<0.95+1.20=2.15) ----- 2Ø16(1.47>>)

Arm.Montagem: 2Ø5(3.25)

Arm.Inferior: 2Ø12.5(6.45), 2Ø12.5(4.50)

Estribos: 12x1Ø5c/0.11(1.32), 26x1Ø5c/0.14(3.64), 7x1Ø5c/0.12(0.84)

Tramo nº 5 (*P40- *) (C= 1.68) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.048 cm.
 (C/3487)

Arm.sup: 2.3 1.8 1.5 1.5 1.5 1.5 1.5 2.3(0.02)
 1.5(1.13)

Arm.inf: -----

Moment.: -4.7 -3.2 -2.3 -1.4 -0.7 -0.3 -0.0 -4.7(x= 0.00) -0.1(x= 1.33)
 -0.0(x= 1.67)

Cortant.: ----- 3.1 3.0 2.5 1.8 1.1 0.1 3.2(x= 0.15)
 0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.15) 0.00(x=
 1.67) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.47+1.65+0.19D=3.30) -----

Arm.Inferior: 2Ø8(1.80+0.10D=1.90)

Estribos: 12x1Ø5c/0.14(1.55)

V 9 --- Grupo: 2

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.534 cm.
 (C/936)

Arm.sup: 0.2 ----- 1.6 6.7 0.2(0.03)
 7.9(4.85)

Arm.inf: ----- 3.9 6.6 6.7 4.0 ----- 4.6(0.99) 7.0(2.15)
 1.5(4.01)

Moment.: -0.3 7.0 11.9 11.9 7.1 -2.9 -13.6 -0.4(0.03) 8.2(0.99) 12.5(2.15)
 0.0(4.01)-14.5(4.90)

Cortant.: ----- 7.9 2.9 -2.7 -8.5 -14.3 ----- 11.9(x= 0.10)
 -17.5(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.82) Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.47=3.55) ----- 3Ø16(1.95>>), 2Ø12.5(1.55>>)

Arm.Inferior: 3Ø16(0.19D+5.31=5.50), 1Ø12.5(3.95)

Estribos: 32x2Ø6.3c/0.15(4.72)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.136 cm.
 (C/3689)

Arm.sup: 6.7 2.3 ----- ----- 1.8 6.6(0.03)
 2.1(4.87)

Arm.inf: ----- ----- 2.5 4.2 3.9 1.8 0.2 4.3(2.90)
 2.3(4.01)

Moment.: -13.6 -4.1 4.5 7.5 7.0 3.2 -3.6 -13.6(0.00) 7.8(2.90)
 4.1(4.01) -4.0(4.90)

Cortant.: ----- 9.0 5.6 1.5 -2.6 -6.1 ----- 10.9(x= 0.18)
 -7.7(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
 4.82) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.95+2.25=4.20), 2Ø12.5(<<1.55+1.30=2.85) ----- 2Ø20(1.55>>)

Arm.Montagem: 2Ø6.3(1.65)

Arm.Inferior: 2Ø12.5(5.45), 1Ø16(4.20)

Estribos: 10x1Ø6.3c/0.14(1.40), 11x1Ø6.3c/0.22(2.45), 4x1Ø6.3c/0.2(0.80)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= -0.076 cm.
 (C/-5235)

Arm.sup: 1.8 1.5 1.5 1.5 2.1 4.9 7.6 1.7(0.03)
 7.9(3.90)

Arm.inf: 0.2 1.8 2.3 1.8 1.5 ----- ----- 1.9(0.79) 2.3(1.40)

Moment.: -3.6 3.1 4.1 3.3 -3.8 -8.7 -14.5 -3.6(0.00) 3.4(0.79) 4.2(1.40)
 -14.5(4.00)

Cortant.: ----- 2.3 -0.2 -2.8 -5.7 -8.1 ----- 3.1(x= 0.18)
 -9.0(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
 3.90) Lim.: 0.72

Arm.Superior: 2Ø20(<<4.00>>) ----- 1Ø16(1.30>>)

Arm.Inferior: 2Ø12.5(4.50)

Estribos: 21x1Ø5c/0.14(2.92), 7x1Ø5c/0.13(0.80)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.959 cm.
(C/625)

Arm.sup: 7.6 1.5 ----- 8.0(0.09)
0.1(5.97)

Arm.inf: ----- 1.5 6.0 8.8 7.7 3.6 ----- 1.5(1.19) 9.0(3.15)
4.5(4.81)

Moment.: -14.5 0.1 10.7 15.3 13.5 6.4 -0.1 -14.6(0.03) 2.5(1.19) 15.4(3.15)
8.1(4.81) -0.1(5.97)

Cortant.: ----- 13.0 7.4 1.3 -4.4 -8.3 ----- 16.6(x= 0.10)
-8.5(x= 5.15)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
5.90) Lim.: 0.72

Arm.Superior: 2Ø20(<<5.55+1.85=7.40), 1Ø16(<<1.30+1.35=2.65) ----- 2Ø8(4.55+0.10D=4.65)

Arm.Inferior: 4Ø16(6.44+0.26D=6.70), 1Ø16(4.20)

Estribos: 9x1Ø8c/0.12(1.08), 32x1Ø8c/0.15(4.72)

V 10 --- Grupo: 2

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.521 cm.
(C/960)

Arm.sup: 0.2 ----- 1.5 6.4 0.3(0.07)
7.5(4.85)

Arm.inf: ----- 3.3 6.2 6.5 4.0 ----- 4.0(0.99) 6.8(2.15)
1.5(4.01)

Moment.: -0.4 5.9 11.2 11.7 7.2 -2.5 -12.9 -0.5(0.04) 7.2(0.99) 12.1(2.15)
0.3(4.01)-13.7(4.90)

Cortant.: ----- 8.2 3.5 -2.3 -8.1 -13.8 ----- 8.9(x= 0.40)
-17.0(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.72

Arm.Superior: 2Ø8(0.10D+3.75=3.85) ----- 3Ø16(1.75>>), 1Ø16(1.35>>)

Arm.Inferior: 3Ø16(0.19D+5.51=5.70), 1Ø10(4.35)

Estribos: 24x1Ø8c/0.15(3.57), 9x1Ø8c/0.12(1.08)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.124 cm.
(C/4045)

Arm.sup: 6.4 2.1 ----- 1.9 6.3(0.03)
2.2(4.87)

Arm.inf: ----- 2.4 4.0 3.7 1.6 ----- 4.2(2.88)
2.1(4.01)

Moment.: -12.9 -3.8 4.3 7.3 6.7 2.9 -3.9 -12.9(0.00) 7.5(2.88)
3.9(4.01) -4.2(4.90)

Cortant.: ----- 8.5 5.3 1.4 -2.6 -5.9 ----- 10.3(x= 0.18)
-7.6(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.82) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.75+2.20=3.95), 1Ø16(<<1.35+1.20=2.55) ----- 3Ø16(1.35>>)

Arm.Montagem: 2Ø6.3(1.85)

Arm.Inferior: 2Ø16(5.35), 1Ø10(3.00)

Estribos: 9x1Ø6.3c/0.14(1.26), 12x1Ø6.3c/0.22(2.59), 4x1Ø6.3c/0.21(0.80)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= -0.057 cm.
(C/-7045)

Arm.sup: 1.9 1.5 ----- 1.5 1.6 4.1 6.5 1.9(0.03)
6.7(3.90)

Arm.inf: ----- 1.5 2.0 1.8 1.5 ----- 1.5(0.79) 2.1(1.40)

Moment.: -3.9 2.4 3.7 3.2 -2.9 -7.3 -12.6 -3.9(0.00) 2.8(0.79) 3.7(1.40)
-12.6(4.00)

Cortant.: ----- 2.7 0.6 -2.2 -5.0 -7.3 ----- 3.5(x= 0.18)
-8.4(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 3.90) Lim.: 0.72

Arm.Superior: 3Ø16(<<4.00>>) ----- 1Ø12.5(1.40>>)

Arm.Inferior: 2Ø12.5(4.45)

Estribos: 27x1Ø5c/0.14(3.72)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.835 cm.
(C/718)

Arm.sup: 6.5 1.5 ----- 6.8(0.09)
0.0(5.97)

Arm.inf: ----- 5.0 7.4 6.6 3.1 ----- 1.5(1.19) 7.5(3.29)
 4.0(4.81)

Moment.: -12.6 -0.2 8.9 13.1 11.9 5.6 -0.1 -12.6(0.01) 1.8(1.19) 13.3(3.29)
 7.2(4.81) -0.1(5.97)

Cortant.: ----- 11.0 6.5 1.4 -3.6 -7.9 ----- 13.8(x= 0.10)
 -8.0(x= 5.15)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 5.90)
 Lim.: 0.72

Arm.Superior: 3Ø16(<<5.35+1.75=7.10), 1Ø12.5(<<1.40+1.20=2.60) -----
 2Ø6.3(4.82+0.08D=4.90)

Arm.Inferior: 2Ø16(6.46+0.19D=6.65), 2Ø16(4.85)

Estribos: 19x1Ø6.3c/0.1(1.90), 12x1Ø6.3c/0.22(2.70), 6x1Ø6.3c/0.2(1.20)

V 11 --- Grupo: 2

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.566 cm.
 (C/883)

Arm.sup: 0.2 ----- 2.1 6.8 0.3(0.03)
 8.2(4.85)

Arm.inf: ----- 4.4 7.4 7.2 3.7 ----- 5.2(0.99) 7.8(2.15)

Moment.: -0.4 8.0 13.1 12.8 6.7 -3.7 -13.8 -0.5(0.03) 9.3(0.99) 13.7(2.15)
 -14.8(4.90)

Cortant.: ----- 8.5 2.9 -4.0 -9.7 -14.0 ----- 17.0(x= 0.10)
 -17.1(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.82)
 Lim.: 0.72

Arm.Superior: 2Ø8(0.10D+3.55=3.65) ----- 3Ø16(1.95>>), 1Ø12.5(1.50>>), 1Ø12.5(1.50>>)

Arm.Inferior: 2Ø16(0.26D+5.49=5.75), 2Ø16(5.25)

Estribos: 8x1Ø8c/0.11(0.80), 19x1Ø8c/0.15(2.84), 9x1Ø8c/0.12(1.08)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.134 cm.
 (C/3738)

Arm.sup: 6.8 2.3 ----- 2.3 6.7(0.03)
 2.6(4.87)

Arm.inf: ----- 2.6 4.3 4.1 1.8 0.1 4.5(2.90)
 2.4(4.01)

Moment.: -13.8 -4.1 4.6 7.7 7.3 3.3 -4.6 -13.8(0.00) 8.0(2.90)
 4.3(4.01) -4.8(4.92)

Cortant.: ----- 8.8 5.6 1.6 -2.6 -6.5 ----- 10.7(x= 0.18)
 -9.0(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.82) Lim.: 0.72

Arm.Superior: 3Ø16(<<1.95+2.35=4.30), 1Ø12.5(<<1.50+1.35=2.85), 1Ø12.5(<<1.50+1.35=2.85)

Arm.Montagem: 2Ø6.3(1.70)

Arm.Inferior: 2Ø12.5(5.60), 1Ø16(4.25)

Estribos: 10x1Ø6.3c/0.14(1.40), 11x1Ø6.3c/0.22(2.45), 5x1Ø6.3c/0.16(0.80)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= -0.069 cm.
 (C/-5787)

Arm.sup: 2.3 1.5 ----- 1.5 2.0 4.6 7.3 2.2(0.03)
 7.7(3.90)

Arm.inf: 0.1 1.7 2.4 2.0 1.5 ----- ----- 1.9(0.79) 2.5(1.40)

Moment.: -4.6 3.1 4.4 3.6 -3.5 -8.3 -13.9 -4.6(0.00) 3.5(0.79) 4.4(1.40)
 -13.9(3.99)

Cortant.: ----- 4.0 0.4 -2.7 -5.6 -8.1 ----- 4.9(x= 0.40)
 -9.4(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 3.90) Lim.: 0.72

Arm.Superior: ----- 1Ø16(1.05>>)

Arm.Montagem: 3Ø16(7.15)

Arm.Inferior: 2Ø12.5(4.55)

Estribos: 21x1Ø5c/0.14(2.88), 7x1Ø5c/0.12(0.84)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.926 cm.
 (C/648)

Arm.sup: 7.3 ----- ----- ----- ----- ----- 7.4(0.07)
 0.1(5.97)

Arm.inf: ----- 1.5 5.7 8.3 7.2 3.3 ----- 1.5(1.19) 8.5(3.15)
 4.2(4.81)

Moment.: -13.9 0.3 10.3 14.5 12.8 6.0 -0.1 -13.9(0.00) 2.5(1.19) 14.7(3.15)
 7.6(4.81) -0.1(5.97)

Cortant.: ----- 12.3 7.0 1.2 -4.3 -7.9 ----- 15.7(x= 0.10)
 -8.1(x= 5.15)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=

5.90) Lim.: 0.72

Arm.Superior: 1Ø16($\ll 1.05+1.25=2.30$) ----- 2Ø8($4.70+0.10D=4.80$)

Arm.Inferior: 4Ø16($6.36+0.19D=6.55$), 1Ø12.5(4.00)

Estribos: 7x1Ø8c/0.13(0.91), 33x1Ø8c/0.15(4.89)

V 12 --- Grupo: 2

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.447 cm.
(C/1119)

Arm.sup: 0.1 ----- 1.8 7.1 0.2(0.03)
7.8(4.86)

Arm.inf: ----- 3.4 5.7 5.8 3.4 ----- 4.0(0.99) 6.1(2.15)

Moment.: -0.3 6.1 10.3 10.5 6.1 -3.2 -14.7 -0.3(0.03) 7.1(0.99) 10.9(2.15)
-14.8(4.94)

Cortant.: ----- 6.8 2.6 -2.4 -7.9 -13.6 ----- 11.5(x= 0.10)
-18.0(x= 4.80)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.80) Lim.: 0.72

Arm.Superior: 2Ø10($0.12D+3.53=3.65$) ----- 3Ø16($1.95>>$), 1Ø16($1.50>>$)

Arm.Inferior: 3Ø16($0.19D+5.36=5.55$), 1Ø10(4.15)

Estribos: 18x1Ø10c/0.22(3.90), 5x1Ø10c/0.18(0.90)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.241 cm.
(C/2077)

Arm.sup: 7.1 2.2 ----- 3.2 7.2(0.09)
3.3(4.91)

Arm.inf: ----- 3.5 5.4 4.8 1.9 ----- 1.5(0.99) 5.5(2.65)
2.6(4.01)

Moment.: -14.7 -3.9 6.2 9.7 8.7 3.4 -6.3 -14.7(0.00) 0.1(0.99) 9.9(2.65)
4.7(4.01) -6.4(4.96)

Cortant.: ----- 11.4 6.6 1.4 -3.7 -8.2 ----- 14.9(x= 0.20)
-11.2(x= 4.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.20) 0.00(x= 4.85) Lim.: 0.72

Arm.Superior: 3Ø16($\ll 1.95+2.00=3.95$), 1Ø16($\ll 1.50+1.35=2.85$) ----- 2Ø16($1.45>>$)

Arm.Montagem: 2Ø8(2.05)

Arm.Inferior: 2Ø16(5.55), 2Ø10(3.45)

Estribos: 6x1Ø8c/0.14(0.80), 27x1Ø8c/0.15(4.00)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= -0.022 cm.
(C/-17915)

Arm.sup: 3.2 1.5 ----- 1.5 4.0 8.0 3.2(0.02)
7.9(3.97)

Arm.inf: ----- 1.5 3.2 3.2 1.6 ----- 1.9(0.79) 3.5(1.65)

Moment.: -6.3 2.7 5.7 5.8 2.9 -7.2 -16.3 -6.3(0.00) 3.5(0.79) 6.2(1.65)
-16.3(4.00)

Cortant.: ----- 5.9 2.3 -2.1 -6.3 -10.0 ----- 7.8(x= 0.15)
-12.7(x= 3.80)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.15) 0.00(x=
3.80) Lim.: 0.72

Arm.Superior: 2Ø16(<<4.00>>) ----- 1Ø16(1.95>>), 1Ø16(0.80>>), 1Ø16(0.80>>)

Arm.Inferior: 2Ø16(4.45)

Estribos: 4x1Ø6.3c/0.21(0.80), 8x1Ø6.3c/0.22(1.68), 12x1Ø6.3c/0.11(1.32)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.930 cm.
(C/645)

Arm.sup: 8.0 1.5 ----- 9.9(0.17)
0.1(5.97)

Arm.inf: ----- 5.5 8.8 7.9 3.8 ----- 1.5(1.19) 9.0(3.35)
4.8(4.81)

Moment.: -16.3 -2.2 9.9 15.2 13.9 6.9 -0.1 -17.5(0.11) 0.6(1.19) 15.5(3.35)
8.5(4.81) -0.2(5.97)

Cortant.: ----- 14.8 8.5 1.9 -4.2 -8.5 ----- 20.5(x= 0.20)
-8.7(x= 5.15)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.20) 0.00(x=
5.90) Lim.: 0.72

Arm.Superior: 2Ø16(<<5.45+2.85=8.30), 1Ø16(<<1.95+1.95=3.90), 1Ø16(<<0.80+1.55=2.35),
1Ø16(<<0.80+1.55=2.35) ----- 2Ø8(3.85+0.10D=3.95)

Arm.Inferior: 4Ø16(6.44+0.26D=6.70), 1Ø12.5(4.30)

Estribos: 14x1Ø8c/0.1(1.40), 30x1Ø8c/0.15(4.40)

V 13 --- Grupo: 2

Tramo nº 1 (*P43-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.248 cm.
(C/2018)

Arm.sup: ----- 1.5 5.8 1.5(0.15)
6.1(4.91)

Arm.inf: 0.1 1.6 3.7 4.3 3.2 1.5 ----- 2.0(0.99) 4.3(2.40)
1.5(4.01)

Moment.: 0.3 2.9 6.6 7.7 5.7 0.5 -11.7 -0.2(0.15) 3.7(0.99) 7.8(2.40)
1.8(4.01)-11.7(4.98)

Cortant.: ----- 4.9 3.0 -0.5 -4.3 -10.1 ----- 4.9(x= 0.90)
-17.5(x= 4.38)

Torsores: ----- 0.00 0.00 0.00 0.00 0.01 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
4.85) Lim.: 0.72

Arm.Superior: 2Ø12.5(0.15D+5.07>>) ----- 2Ø16(1.60>>)

Arm.Inferior: 3Ø16(0.19D+5.36=5.55)

Estribos: 27x1Ø8c/0.15(4.00), 8x1Ø8c/0.1(0.80)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.265 cm.
(C/1885)

Arm.sup: 5.8 1.6 ----- 3.1 6.0(0.06)
3.1(4.99)

Arm.inf: ----- 3.0 4.8 4.6 2.4 ----- 1.5(0.99) 4.9(2.88)
3.2(4.00)

Moment.: -11.7 -2.9 5.4 8.6 8.3 4.3 -6.0 -11.7(0.00) 0.8(0.99) 8.9(2.88)
5.7(4.00) -6.0(5.00)

Cortant.: ----- 9.4 5.6 1.7 -2.1 -9.1 ----- 11.9(x= 0.15)
-11.6(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.15) 0.01(x=
4.90) Lim.: 0.72

Arm.Superior: 2Ø12.5(<<5.22+1.98=7.20), 2Ø16(<<1.60+1.55=3.15) ----- 2Ø16(1.35>>)

Arm.Montagem: 2Ø6.3(2.20)

Arm.Inferior: 3Ø16(5.60)

Estribos: 12x1Ø6.3c/0.12(1.44), 10x1Ø6.3c/0.22(2.15), 11x1Ø6.3c/0.11(1.21)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= -0.048 cm.
(C/-8274)

Arm.sup: 3.1 1.7 1.5 1.5 1.5 2.5 4.1 3.3(0.10)
4.1(3.89)

Arm.inf: ----- 1.5 1.5 1.5 1.5 ----- 1.5(0.79) 1.6(1.88)

Moment.: -6.0 -3.1 2.3 2.8 -1.7 -4.5 -8.1 -6.0(0.04) 0.6(0.79) 2.8(1.88)
-8.1(4.00)

Cortant.: ----- 3.9 1.8 -0.6 -2.8 -4.7 ----- 4.9(x= 0.15)
-5.9(x= 3.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.02(x= 0.10) 0.01(x= 3.85) Lim.: 0.72

Arm.Superior: 2Ø16(<<4.00>>) ----- 1Ø10(0.80>>)

Arm.Inferior: 2Ø10(4.35)

Estribos: 28x1Ø5c/0.14(3.80)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.499 cm. (C/1201)

Arm.sup: 4.1 1.5 ----- 2.4 4.3(0.11)
2.8(5.87)

Arm.inf: ----- 3.3 4.7 3.9 1.5 ----- 1.5(1.19) 4.7(3.15)
1.7(4.81)

Moment.: -8.1 -0.2 6.0 8.5 7.0 1.8 -4.8 -8.1(0.02) 1.2(1.19) 8.5(3.15)
3.1(4.81) -5.3(5.91)

Cortant.: ----- 7.2 4.0 0.5 -3.1 -6.4 ----- 8.9(x= 0.15)
-8.6(x= 5.85)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.15) 0.01(x= 5.85) Lim.: 0.72

Arm.Superior: 2Ø16(<<5.35+1.80=7.15), 1Ø10(<<0.80+1.20=2.00) ----- 2Ø16(1.47>>)

Arm.Montagem: 2Ø5(3.20)

Arm.Inferior: 3Ø16(6.45), 1Ø10(3.80)

Estribos: 10x1Ø5c/0.11(1.10), 28x1Ø5c/0.14(3.82), 8x1Ø5c/0.11(0.88)

Tramo nº 5 (*P40- *) (C= 1.67) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.048 cm. (C/3479)

Arm.sup: 2.4 1.8 1.5 1.5 1.5 1.5 1.5 2.4(0.02)
1.5(1.13)

Arm.inf: -----

Moment.: -4.8 -3.2 -2.2 -1.4 -0.7 -0.3 -0.0 -4.8(x= 0.00) -0.1(x= 1.33)
-0.0(x= 1.67)

Cortant.: ----- 3.5 3.0 2.5 1.8 1.0 0.1 3.7(x= 0.15)
0.0(x= 1.67)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 0.00 Extr. apoio: 0.00(x= 0.15) 0.00(x= 1.67) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.47+1.65+0.19D=3.30) -----

Arm.Inferior: 2Ø8(1.80+0.10D=1.90)

Estribos: 12x1Ø5c/0.14(1.55)

V 14 --- Grupo: 2

Tramo nº 1 (*PE4-PE4*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.133 cm. (C/3766)

Arm.sup: ----- 1.5 3.7 0.1(0.03)
4.0(4.93)

Arm.inf: ----- 1.5 2.4 2.4 1.6 1.5 ----- 1.7(0.99) 2.5(2.15)
1.5(4.01)

Moment.: -0.1 2.6 4.3 4.4 3.0 -0.1 -7.1 -0.1(0.03) 3.0(0.99) 4.5(2.15)
0.7(4.01) -7.4(4.94)

Cortant.: ----- 2.4 0.9 -0.8 -2.4 -3.9 ----- 4.3(x= 0.10)
-11.7(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.01 ----- Extr. apoio: 0.00(x= 0.10) 0.01(x= 4.90) Lim.: 0.72

Arm.Superior: 2Ø6.3(0.08D+3.92=4.00) ----- 2Ø16(1.55>>)

Arm.Inferior: 2Ø16(0.19D+5.41=5.60)

Estribos: 18x1Ø6.3c/0.22(3.92), 8x1Ø6.3c/0.11(0.88)

Tramo nº 2 (*PE4-PE4*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 50 Flecha= 0.057 cm. (C/7044)

Arm.sup: 3.7 1.5 1.5 ----- 3.7(0.01)
0.1(3.98)

Arm.inf: ----- 1.5 1.5 2.1 2.2 1.6 0.2 2.3(2.54)
1.6(3.36)

Moment.: -7.1 -2.3 2.1 3.7 4.0 2.9 0.4 -7.1(0.00) 4.1(2.54)
2.9(3.33) -0.2(3.98)

Cortant.: ----- 6.1 3.9 1.6 -1.0 -3.1 ----- 8.0(x= 0.10)
-4.9(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 3.90) Lim.: 0.72

Arm.Superior: 2Ø16(<<1.55+1.85=3.40) ----- 2Ø6.3(2.72+0.08D=2.80)

Arm.Inferior: 2Ø16(4.41+0.19D=4.60)

Estribos: 7x1Ø5c/0.13(0.80), 21x1Ø5c/0.14(3.00)

Armadura de vigas
 Obra: TRF-4 VARAS VERTICAL PARTE 1
 Grupo no 3 Piso 3 --- Pisoigual 1

V 1 --- Grupo: 3

Tramo nº 1 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.349 cm.
 (C/1435)

Arm.sup:	0.1	-----	-----	-----	-----	1.2	5.0	0.1(0.04)
5.1(4.96)								
Arm.inf:	-----	1.6	2.9	3.2	2.3	-----	-----	1.9(1.00) 3.2(2.30)
1.2(4.01)								
Moment.:	-0.2	2.2	4.0	4.5	3.2	-0.2	-7.7	-0.2(0.03) 2.7(1.00) 4.5(2.30)
0.6(4.01) -7.7(5.00)								
Cortant.:	-----	2.9	1.4	-0.5	-2.7	-5.9	-----	6.4(x= 0.10)
-15.8(x= 4.90)								
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.10) 0.01(x=
4.90) Lim.: 0.54								

Arm.Superior: 2Ø10(0.12D+3.93=4.05) ----- 3Ø16(1.50>>)

Arm.Inferior: 3Ø16(0.19D+5.46=5.65)

Estribos: 24x1Ø10c/0.17(4.00), 6x1Ø10c/0.15(0.80)

Tramo nº 2 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.253 cm.
 (C/1976)

Arm.sup:	5.0	1.2	-----	-----	-----	1.2	4.5	5.1(0.06)
4.6(4.97)								
Arm.inf:	-----	1.5	3.8	4.5	3.9	1.8	-----	2.1(1.00) 4.5(2.55)
2.3(4.01)								
Moment.:	-7.7	2.1	5.3	6.3	5.5	2.5	-6.9	-7.7(0.00) 2.9(1.00) 6.3(2.55)
3.2(4.01) -6.9(5.00)								
Cortant.:	-----	5.7	2.5	0.1	-2.2	-5.4	-----	14.1(x= 0.10)
-14.9(x= 4.90)								
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.10) 0.01(x=
4.90) Lim.: 0.54								

Arm.Superior: 3Ø16(<<1.50+1.50=3.00) ----- 3Ø16(1.40>>)

Arm.Montagem: 2Ø8(2.55)

Arm.Inferior: 3Ø16(5.60)

Estribos: 8x1Ø8c/0.11(0.80), 21x1Ø8c/0.15(3.20), 8x1Ø8c/0.1(0.80)

Tramo nº 3 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.294 cm.
(C/1700)

Arm.sup: 4.5 ----- 4.6 4.7(0.06)
4.6(4.97)

Arm.inf: ----- 1.6 3.8 4.4 3.8 1.5 ----- 2.1(1.00) 4.4(2.55)
2.1(4.01)

Moment.: -6.9 2.2 5.3 6.2 5.3 2.2 -7.0 -6.9(0.01) 3.0(1.00) 6.2(2.55)
2.9(4.01) -7.0(5.00)

Cortant.: ----- 5.5 2.3 -0.0 -2.3 -5.6 ----- 13.6(x= 0.10)
-15.2(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.01(x=
4.90) Lim.: 0.54

Arm.Superior: 3Ø16(<<1.40+1.40=2.80) ----- 3Ø16(1.40>>)

Arm.Montagem: 2Ø8(2.65)

Arm.Inferior: 2Ø12.5(5.75), 1Ø16(5.30)

Estribos: 8x1Ø8c/0.11(0.80), 21x1Ø8c/0.15(3.20), 8x1Ø8c/0.1(0.80)

Tramo nº 4 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.254 cm.
(C/1965)

Arm.sup: 4.6 1.2 ----- 1.2 5.0 4.7(0.06)
5.0(4.97)

Arm.inf: ----- 1.7 3.9 4.5 3.8 1.5 ----- 2.3(1.00) 4.5(2.55)
2.1(4.01)

Moment.: -7.0 2.4 5.4 6.3 5.3 2.1 -7.6 -7.0(0.01) 3.2(1.00) 6.3(2.55)
2.9(4.01) -7.6(5.00)

Cortant.: ----- 5.5 2.3 -0.1 -2.4 -5.7 ----- 13.6(x= 0.10)
-15.5(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.01(x=
4.90) Lim.: 0.54

Arm.Superior: 3Ø16(<<1.40+1.45=2.85) ----- 3Ø16(1.50>>)

Arm.Montagem: 2Ø10(2.55)

Arm.Inferior: 3Ø16(5.55)

Estribos: 24x1Ø10c/0.17(4.00), 6x1Ø10c/0.15(0.80)

Tramo nº 5 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.365 cm. (C/1371)

Arm.sup: 5.0 1.2 ----- 0.2 5.1(0.06)
 0.2(4.96)

Arm.inf: ----- 2.2 3.1 2.8 1.5 ----- 1.2(1.00) 3.2(2.73)
 1.8(4.01)

Moment.: -7.6 -0.2 3.1 4.4 4.0 2.1 -0.3 -7.6(0.01) 0.7(1.00) 4.4(2.73)
 2.5(4.01) -0.4(4.97)

Cortant.: ----- 5.9 2.6 0.4 -1.5 -2.9 ----- 14.2(x= 0.10)
 -12.5(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 3Ø16(<<1.50+1.45=2.95) ----- 2Ø8(4.00+0.10D=4.10)

Arm.Inferior: 2Ø12.5(5.47+0.18D=5.65), 1Ø10(5.35)

Estribos: 8x1Ø8c/0.11(0.80), 21x1Ø8c/0.15(3.20), 8x1Ø8c/0.11(0.80)

V 2 --- Grupo: 3

Tramo nº 1 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.173 cm. (C/2898)

Arm.sup: ----- 1.2 2.6 0.0(0.04)
 2.7(4.93)

Arm.inf: ----- 1.2 1.8 2.1 1.4 ----- 1.2(1.00) 2.1(2.30)
 1.2(4.01)

Moment.: -0.0 1.0 2.5 2.9 2.0 -0.4 -4.0 -0.0(0.03) 1.3(1.00) 3.0(2.30)
 0.1(4.01) -4.0(5.00)

Cortant.: ----- 2.0 1.2 -0.3 -2.0 -3.6 ----- 2.0(x= 0.80)
 -5.1(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.92=4.00) ----- 2Ø10(1.50>>), 1Ø12.5(1.10>>)

Arm.Inferior: 2Ø16(0.19D+5.41=5.60)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 2 (*P40-P40*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.118 cm. (C/4229)

Arm.sup: 2.6 1.2 ----- 1.2 2.4 2.7(0.07)
 2.5(4.93)

Arm.inf: ----- 1.2 2.0 2.6 2.1 1.2 ----- 1.2(1.00) 2.6(2.55)
 1.2(4.01)

Moment.: -4.0 0.6 2.8 3.6 2.9 0.8 -3.7 -4.0(0.00) 1.1(1.00) 3.7(2.55)
 1.3(4.01) -3.7(5.00)

Cortant.: ----- 3.5 1.8 0.1 -1.7 -3.3 ----- 4.8(x= 0.10)
 -4.7(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.50+1.55=3.05), 1Ø12.5(<<1.10+1.10=2.20) ----- 2Ø10(1.50>>),
 1Ø12.5(1.00>>)

Arm.Montagem: 2Ø5(2.45)

Arm.Inferior: 2Ø16(5.45)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 3 (*P40-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.134 cm.
 (C/3738)

Arm.sup: 2.4 1.2 ----- 1.2 2.3 2.5(0.07)
 2.4(4.94)

Arm.inf: ----- 1.2 2.0 2.5 2.0 1.2 ----- 1.2(1.00) 2.6(2.55)
 1.2(4.01)

Moment.: -3.7 0.5 2.8 3.6 2.8 0.7 -3.5 -3.7(0.00) 1.1(1.00) 3.6(2.55)
 1.2(4.01) -3.5(5.00)

Cortant.: ----- 3.4 1.8 0.0 -1.7 -3.3 ----- 4.8(x= 0.10)
 -4.7(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.50+1.50=3.00), 1Ø12.5(<<1.00+1.00=2.00) ----- 2Ø10(1.45>>),
 1Ø10(1.00>>)

Arm.Montagem: 2Ø5(2.55)

Arm.Inferior: 2Ø16(5.50)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 4 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.121 cm.
 (C/4123)

Arm.sup: 2.3 1.2 ----- 1.2 2.6 2.4(0.07)
 2.7(4.93)

Arm.inf: ----- 1.2 2.1 2.6 2.0 1.2 ----- 1.2(1.00) 2.6(2.55)
 1.2(4.01)
 Moment.: -3.5 0.8 2.9 3.6 2.8 -0.5 -4.0 -3.5(0.00) 1.3(1.00) 3.6(2.55)
 1.0(4.01) -4.0(5.00)
 Cortant.: ----- 3.3 1.6 -0.1 -1.8 -3.5 ----- 4.6(x= 0.10)
 -4.9(x= 4.90)
 Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.45+1.45=2.90), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø10(1.55>>),
 1Ø12.5(1.10>>)

Arm.Montagem: 2Ø5(2.45)

Arm.Inferior: 2Ø16(5.35)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 5 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.172 cm.
(C/2910)

Arm.sup: 2.6 1.2 ----- ----- ----- 2.7(0.07)
 0.0(4.96)

Arm.inf: ----- ----- 1.4 2.1 1.8 1.2 ----- 1.2(1.00) 2.1(2.55)
 1.2(4.01)

Moment.: -4.0 -0.5 2.0 2.9 2.5 0.9 -0.0 -4.0(0.01) 0.1(1.00) 2.9(2.55)
 1.2(4.01) -0.1(4.97)

Cortant.: ----- 3.7 2.0 0.3 -1.2 -2.0 ----- 5.1(x= 0.10)
 -2.0(x= 4.05)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.50=3.05), 1Ø12.5(<<1.10+1.10=2.20) -----
 2Ø6.3(3.92+0.08D=4.00)

Arm.Inferior: 2Ø12.5(5.30+0.15D=5.45)

Estribos: 35x1Ø5c/0.14(4.80)

V 3 --- Grupo: 3

Tramo nº 1 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.149 cm.
(C/3356)

Arm.sup: ----- ----- ----- ----- 1.2 2.5 0.0(0.04)
 2.7(4.87)

Arm.inf: ----- 1.2 1.7 1.9 1.2 ----- ----- 1.2(1.00) 2.0(2.30)

Moment.: -0.0 0.9 2.4 2.7 1.7 -0.7 -4.1 -0.0(0.03) 1.3(1.00) 2.8(2.30)
-4.1(4.97)

Cortant.: ----- 1.8 1.1 -0.4 -2.0 -3.7 ----- 1.8(x= 0.80)
-5.2(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.87=3.95) ----- 2Ø10(1.60>>), 1Ø12.5(1.20>>)

Arm.Inferior: 2Ø12.5(0.15D+5.25=5.40)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 2 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.102 cm.
(C/4883)

Arm.sup: 2.5 1.2 ----- 1.2 2.1 2.6(0.10)
2.2(4.92)

Arm.inf: ----- 1.2 1.8 2.4 1.9 1.2 ----- 1.2(1.00) 2.4(2.55)
1.2(4.01)

Moment.: -4.1 -0.7 2.5 3.3 2.7 0.7 -3.4 -4.1(0.00) 0.8(1.00) 3.3(2.55)
1.1(4.01) -3.4(5.00)

Cortant.: ----- 3.4 1.8 0.1 -1.5 -3.1 ----- 4.8(x= 0.18)
-4.4(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.60+1.60=3.20), 1Ø12.5(<<1.20+1.10=2.30) ----- 2Ø10(1.50>>),
1Ø10(1.00>>)

Arm.Montagem: 2Ø5(2.35)

Arm.Inferior: 2Ø10(5.35), 1Ø10(3.15)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.110 cm.
(C/4555)

Arm.sup: 2.1 1.2 ----- 1.2 2.3 2.3(0.13)
2.4(4.87)

Arm.inf: ----- 1.2 1.9 2.4 1.8 1.2 ----- 1.2(1.00) 2.4(2.55)
1.2(4.01)

Moment.: -3.4 0.5 2.6 3.3 2.6 -0.5 -3.7 -3.4(0.03) 1.0(1.00) 3.3(2.55)
0.9(4.01) -3.7(5.00)

Cortant.: ----- 3.2 1.6 -0.0 -1.7 -3.3 ----- 4.6(x= 0.18)
-4.7(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.82) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.50+1.55=3.05), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø10(1.55>>), 1Ø10(1.10>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø10(5.40), 1Ø10(3.05)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 4 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.109 cm. (C/4584)

Arm.sup: 2.3 1.2 ----- 1.2 2.4 2.4(0.13)
2.4(4.94)

Arm.inf: ----- 1.2 1.9 2.4 1.9 1.2 ----- 1.2(1.00) 2.4(2.55)
1.2(4.01)

Moment.: -3.7 -0.5 2.6 3.4 2.7 0.6 -3.7 -3.7(0.00) 1.0(1.00) 3.4(2.55)
1.1(4.01) -3.7(5.00)

Cortant.: ----- 3.3 1.7 0.0 -1.6 -3.2 ----- 4.7(x= 0.18)
-4.6(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.55=3.10), 1Ø10(<<1.10+1.10=2.20) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.35)

Arm.Inferior: 2Ø12.5(5.25)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 5 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.150 cm. (C/3325)

Arm.sup: 2.4 1.2 ----- 2.5(0.07)
0.0(4.96)

Arm.inf: ----- 1.3 1.9 1.6 1.2 ----- 1.2(1.00) 1.9(2.55)
1.2(4.01)

Moment.: -3.7 -0.4 1.8 2.7 2.3 0.9 -0.0 -3.7(0.01) 0.1(1.00) 2.7(2.55)
1.2(4.01) -0.1(4.97)

Cortant.: ----- 3.3 1.8 0.3 -1.1 -1.8 ----- 4.7(x= 0.10)
-2.0(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.60=3.15) ----- 2Ø6.3(3.82+0.08D=3.90)

Arm.Inferior: 2Ø12.5(5.30+0.15D=5.45)

Estribos: 35x1Ø5c/0.14(4.80)

V 4 --- Grupo: 3

Tramo nº 1 (*V 1-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.238 cm.
(C/1513)

Arm.sup:	-----	-----	-----	-----	-----	-----	-----	-----	-----	
0.1(3.56)										
Arm.inf:	-----	1.3	2.7	3.3	2.9	1.5	-----	1.5(0.71)	3.3(1.80)	
1.8(2.89)										
Moment.:	-0.0	1.8	3.8	4.7	4.0	2.1	-0.1	-0.0(0.00)	2.2(0.71)	4.7(1.80)
2.6(2.89)	-0.1(3.57)									
Cortant.:	2.3	3.4	2.3	0.2	-2.1	-3.8	-----	3.4(x= 0.55)		
-5.0(x= 3.50)										
Torsores:	0.00	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.00)	0.00(x=	
3.50) Lim.: 0.54										

Arm.Superior: 2Ø6.3(0.08D+3.74+0.08D=3.90) -----

Arm.Inferior: 2Ø12.5(0.15D+3.74+0.15D=4.04), 1Ø12.5(2.65)

Estribos: 25x1Ø5c/0.14(3.40)

V 5 --- Grupo: 3

Tramo nº 1 (*P41-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.174 cm.
(C/2872)

Arm.sup:	-----	-----	-----	-----	-----	1.2	2.8	0.0(0.04)		
3.1(4.85)										
Arm.inf:	-----	1.2	1.9	2.1	1.3	-----	1.2(1.00)	2.2(2.30)		
Moment.:	-0.0	1.1	2.6	3.0	1.8	-0.9	-4.6	-0.0(0.03)	1.4(1.00)	3.0(2.30)
-4.6(4.95)										
Cortant.:	-----	2.0	1.2	-0.4	-2.2	-4.1	-----	2.0(x= 0.80)		
-5.6(x= 4.82)										
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.10)	0.00(x=	
4.82) Lim.: 0.54										

Arm.Superior: 2Ø6.3(0.08D+3.77=3.85) ----- 2Ø12.5(1.65>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.25=5.40)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 2 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.113 cm.
(C/4423)

Arm.sup: 2.8 1.2 ----- 1.2 2.3 2.9(0.08)
2.4(4.90)

Arm.inf: ----- 1.2 2.0 2.6 2.1 1.2 ----- 1.2(1.00) 2.6(2.55)
1.2(4.01)

Moment.: -4.6 -0.8 2.8 3.7 3.0 0.7 -3.8 -4.6(0.00) 0.9(1.00) 3.7(2.55)
1.2(4.01) -3.8(5.00)

Cortant.: ----- 3.8 2.0 0.1 -1.7 -3.5 ----- 5.2(x= 0.18)
-4.7(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.65+1.65=3.30), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø12.5(1.55>>)

Arm.Montagem: 2Ø5(2.25)

Arm.Inferior: 2Ø16(5.40)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.119 cm.
(C/4194)

Arm.sup: 2.3 1.2 ----- 1.2 2.6 2.4(0.13)
2.7(4.90)

Arm.inf: ----- 1.2 2.1 2.6 2.0 1.2 ----- 1.2(1.00) 2.6(2.55)
1.2(4.01)

Moment.: -3.8 0.6 2.9 3.7 2.8 -0.7 -4.3 -3.8(0.03) 1.2(1.00) 3.7(2.55)
0.9(4.01) -4.3(5.00)

Cortant.: ----- 3.6 1.8 -0.1 -1.9 -3.7 ----- 4.9(x= 0.18)
-5.0(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10) ----- 2Ø10(1.55>>), 1Ø12.5(1.15>>)

Arm.Montagem: 2Ø5(2.35)

Arm.Inferior: 2Ø16(5.35)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 4 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.150 cm.

(C/3331)

Arm.sup: 2.0(4.94)	2.6	1.2	-----	-----	-----	-----	2.0	2.8(0.13)
Arm.inf: 1.2(4.01)	----- 1.2	1.9	2.6	2.2	1.2	-----	1.2(1.00)	2.6(2.55)
Moment.: 1.5(4.01) -3.0(5.00)	-4.3	-0.7	2.6	3.6	3.0	1.0	-3.0	-4.3(0.03) 0.7(1.00) 3.6(2.55)
Cortant.: -4.5(x= 4.90)	----- 3.9	2.1	0.2	-1.5	-3.2	-----	5.4(x= 0.18)	
Torsores: 4.90) Lim.: 0.54	----- 0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.18)	0.00(x=

Arm.Superior: 2Ø10(<<1.55+1.60=3.15), 1Ø12.5(<<1.15+1.25=2.40) ----- 2Ø12.5(1.35>>)

Arm.Montagem: 2Ø5(2.55)

Arm.Inferior: 2Ø16(5.35)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 5 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.046 cm.
(C/10987)

Arm.sup: 4.5(4.90)	2.0	1.2	-----	-----	1.2	1.8	4.2	2.0(0.07)
Arm.inf: 1.2(4.01)	----- 1.4	2.7	2.9	1.9	-----	-----	1.8(1.00)	2.9(2.30)
Moment.: 0.4(4.01) -6.5(4.99)	-3.0	2.0	3.8	4.0	2.7	-2.5	-6.5	-3.0(0.00) 2.5(1.00) 4.1(2.30)
Cortant.: -5.8(x= 4.90)	----- 2.8	1.1	-0.7	-2.5	-4.4	-----	4.1(x= 0.10)	
Torsores: 4.90) Lim.: 0.54	----- 0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.10)	0.00(x=

Arm.Superior: 2Ø12.5(<<1.35+1.45=2.80) ----- 2Ø12.5(2.35>>), 1Ø16(1.40>>)

Arm.Montagem: 2Ø5(1.70)

Arm.Inferior: 2Ø16(5.25)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 6 (*P42-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.420 cm.
(C/856)

Arm.sup: 0.1(3.56)	4.2	-----	-----	-----	-----	-----	0.1	4.3(0.04)
-----------------------	-----	-------	-------	-------	-------	-------	-----	-----------

Arm.inf: ----- 1.2 4.3 6.1 5.4 2.9 ----- 1.4(0.71) 6.2(2.05)
 3.5(2.89)

Moment.: -6.5 0.9 6.0 8.4 7.6 4.1 -0.2 -6.5(0.00) 2.0(0.71) 8.4(2.05)
 4.9(2.89) -0.2(3.57)

Cortant.: ----- 10.6 6.1 1.2 -3.4 -6.9 ----- 13.2(x= 0.10)
 -7.6(x= 3.50)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 3.50) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<2.35+1.80=4.15), 1Ø16(<<1.40+1.20=2.60) -----
 2Ø8(2.30+0.10D=2.40)

Arm.Inferior: 3Ø16(3.96+0.19D=4.15), 1Ø12.5(3.10)

Estribos: 8x1Ø8c/0.11(0.80), 17x1Ø8c/0.15(2.60)

V 6 --- Grupo: 3

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.195 cm.
 (C/2559)

Arm.sup: ----- 1.2 2.8 0.0(0.04)
 2.9(4.94)

Arm.inf: ----- 1.2 1.9 2.2 1.5 ----- 1.2(1.00) 2.2(2.30)
 1.2(4.01)

Moment.: -0.1 1.2 2.7 3.0 2.1 -0.2 -4.3 -0.1(0.03) 1.6(1.00) 3.1(2.30)
 0.4(4.01) -4.3(5.00)

Cortant.: ----- 2.1 1.1 -0.3 -1.9 -3.8 ----- 2.3(x= 0.10)
 -6.7(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.97=4.05) ----- 2Ø12.5(1.50>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.20=5.35)

Estribos: 29x1Ø5c/0.14(4.00), 7x1Ø5c/0.12(0.80)

Tramo nº 2 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.112 cm.
 (C/4483)

Arm.sup: 2.8 1.2 ----- 1.2 2.6 2.9(0.06)
 2.7(4.90)

Arm.inf: ----- 1.2 2.2 2.7 2.2 1.2 ----- 1.2(1.00) 2.7(2.55)
 1.2(4.01)

Moment.: -4.3 1.0 3.1 3.8 3.1 0.9 -4.3 -4.3(0.00) 1.5(1.00) 3.8(2.55)
 1.4(4.01) -4.3(5.00)

Cortant.: ----- 3.5 1.6 -0.0 -1.7 -3.6 ----- 6.2(x= 0.10)
 -5.7(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.82) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.50+1.55=3.05), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø10(1.55>>),
 1Ø12.5(1.15>>)

Arm.Montagem: 2Ø5(2.40)

Arm.Inferior: 2Ø16(5.45)

Estribos: 7x1Ø5c/0.13(0.80), 28x1Ø5c/0.14(3.92)

Tramo nº 3 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.124 cm.
 (C/4019)

Arm.sup: 2.6 1.2 ----- 1.2 2.4 2.8(0.13)
 2.5(4.94)

Arm.inf: ----- 1.2 2.1 2.6 2.2 1.2 ----- 1.2(1.00) 2.6(2.55)
 1.2(4.01)

Moment.: -4.3 0.6 2.9 3.7 3.1 1.1 -3.7 -4.3(0.03) 1.2(1.00) 3.7(2.55)
 1.6(4.01) -3.7(5.00)

Cortant.: ----- 3.8 1.8 0.1 -1.5 -3.3 ----- 6.1(x= 0.18)
 -6.1(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<1.55+1.55=3.10), 1Ø12.5(<<1.15+1.20=2.35) ----- 2Ø12.5(1.40>>),
 1Ø10(0.90>>)

Arm.Montagem: 2Ø5(2.55)

Arm.Inferior: 2Ø16(5.35)

Estribos: 28x1Ø5c/0.14(3.92), 7x1Ø5c/0.13(0.80)

Tramo nº 4 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.137 cm.
 (C/3662)

Arm.sup: 2.4 ----- 1.2 3.0 2.5(0.06)
 3.1(4.94)

Arm.inf: ----- 1.2 2.3 2.8 2.2 1.2 ----- 1.3(1.00) 2.8(2.55)
 1.2(4.01)

Moment.: -3.7 1.2 3.3 3.9 3.1 0.9 -4.6 -3.7(0.00) 1.8(1.00) 3.9(2.55)
 1.4(4.01) -4.6(5.00)

Cortant.: ----- 3.4 1.5 -0.1 -1.7 -3.8 ----- 6.0(x= 0.10)
 -7.1(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.40+1.35=2.75), 1Ø10(<<0.90+0.90=1.80) ----- 2Ø12.5(1.55>>), 1Ø10(1.00>>)

Arm.Montagem: 2Ø5(2.55)

Arm.Inferior: 2Ø16(5.55)

Estribos: 29x1Ø5c/0.14(4.00), 8x1Ø5c/0.11(0.80)

Tramo nº 5 (*P42-P43*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.166 cm. (C/3019)

Arm.sup: 3.0 1.2 ----- 1.2 3.2 3.1(0.06)
3.2(4.96)

Arm.inf: ----- 1.2 2.5 3.1 2.6 1.2 ----- 1.3(1.00) 3.1(2.55)
1.4(4.01)

Moment.: -4.6 1.2 3.6 4.3 3.6 1.3 -4.9 -4.6(0.00) 1.8(1.00) 4.4(2.55)
1.9(4.01) -4.9(5.00)

Cortant.: ----- 4.0 1.8 -0.1 -1.8 -4.2 ----- 7.1(x= 0.10)
-8.6(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.01(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.45=3.00), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø12.5(1.55>>), 1Ø12.5(1.00>>)

Arm.Montagem: 2Ø6.3(2.50)

Arm.Inferior: 2Ø16(5.50)

Estribos: 24x1Ø6.3c/0.17(4.00), 7x1Ø6.3c/0.13(0.80)

Tramo nº 6 (*P43-PE4*) (C= 3.60) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.128 cm. (C/2806)

Arm.sup: 3.2 1.2 ----- 3.3(0.09)
0.1(3.56)

Arm.inf: ----- 1.5 2.6 2.6 1.6 ----- 2.8(2.05)
1.8(2.89)

Moment.: -4.9 -1.3 2.1 3.7 3.6 2.2 -0.1 -4.9(0.03) 3.9(2.05)
2.6(2.89) -0.1(3.57)

Cortant.: ----- 5.3 3.3 1.2 -0.9 -2.6 ----- 5.6(x= 0.30)
-3.7(x= 3.50)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.10) 0.00(x= 3.50) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.45=3.00), 1Ø12.5(<<1.00+0.95=1.95) -----
 2Ø6.3(2.62+0.08D=2.70)

Arm.Inferior: 2Ø16(3.91+0.19D=4.10)

Estribos: 25x1Ø5c/0.14(3.40)

V 7 --- Grupo: 3

Tramo nº 1 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.194 cm.
 (C/2577)

Arm.sup: 0.1 ----- 1.2 3.1 0.1(0.04)
 3.2(4.94)

Arm.inf: ----- 1.2 1.9 2.2 1.5 ----- 1.2(0.99) 2.2(2.38)
 1.2(4.00)

Moment.: -0.2 1.3 2.7 3.0 2.1 -0.3 -4.8 -0.2(0.03) 1.6(0.99) 3.1(2.38)
 0.3(4.00) -4.8(5.00)

Cortant.: ----- 2.1 1.1 -0.4 -2.0 -3.9 ----- 7.1(x= 0.10)
 -7.4(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.92=4.00) ----- 2Ø12.5(1.55>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.35=5.50)

Estribos: 8x1Ø5c/0.1(0.80), 23x1Ø5c/0.14(3.20), 8x1Ø5c/0.1(0.80)

Tramo nº 2 (*P41-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.158 cm.
 (C/3158)

Arm.sup: 3.1 1.2 ----- 2.1 3.2(0.04)
 2.2(4.94)

Arm.inf: ----- 1.2 2.1 2.7 2.4 1.2 ----- 1.2(0.99) 2.7(2.66)
 1.4(4.00)

Moment.: -4.8 0.6 2.9 3.8 3.4 1.5 -3.2 -4.8(0.00) 1.1(0.99) 3.8(2.66)
 2.0(4.00) -3.2(4.99)

Cortant.: ----- 3.9 1.9 0.3 -1.4 -3.2 ----- 8.3(x= 0.10)
 -6.3(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.10) 0.00(x=
 4.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.55+1.55=3.10), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø12.5(1.25>>)

Arm.Montagem: 2Ø6.3(2.70)

Arm.Inferior: 2Ø16(5.40)

Estribos: 7x1Ø6.3c/0.13(0.80), 24x1Ø6.3c/0.17(4.00)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.012 cm.
(C/33544)

Arm.sup: 2.1 1.2 ----- 1.2 2.9 2.1(0.04)
2.9(3.96)

Arm.inf: ----- 1.2 1.8 2.0 1.6 1.2 ----- 1.2(0.79) 2.0(1.91)
1.2(3.22)

Moment.: -3.2 1.3 2.5 2.8 2.2 -1.3 -4.4 -3.2(0.00) 1.6(0.79) 2.8(1.91)
1.0(3.22) -4.4(4.00)

Cortant.: ----- 2.8 1.1 -0.2 -1.6 -3.4 ----- 6.2(x= 0.10)
-6.2(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
3.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.25+1.50=2.75) ----- 1Ø10(0.80>>), 2Ø12.5(1.75>>)

Arm.Montagem: 2Ø5(1.25)

Arm.Inferior: 2Ø12.5(4.50)

Estribos: 7x1Ø5c/0.13(0.80), 15x1Ø5c/0.14(2.20), 7x1Ø5c/0.13(0.80)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.334 cm.
(C/1796)

Arm.sup: 2.9 ----- 1.2 ----- 2.9(0.06)
1.2(5.41)

Arm.inf: ----- 1.2 2.2 2.6 1.6 ----- 1.2(1.20) 2.6(2.66)
1.2(4.81)

Moment.: -4.4 0.7 3.1 3.6 2.2 -0.3 0.0 -4.4(0.01) 1.4(1.20) 3.7(2.66)
0.1(4.81) -1.1(5.41)

Cortant.: ----- 3.6 1.4 -0.5 -2.1 -2.3 ----- 8.5(x= 0.10)
-2.6(x= 4.66)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.10) 0.00(x=
5.90) Lim.: 0.54

Arm.Superior: 1Ø10(<<0.80+1.20=2.00), 2Ø12.5(<<1.75+1.90=3.65) -----
2Ø10(4.63+0.12D=4.75)

Arm.Inferior: 2Ø16(6.26+0.19D=6.45)

Estribos: 7x1Ø6.3c/0.13(0.80), 29x1Ø6.3c/0.17(5.00)

V 8 --- Grupo: 3

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.168 cm.
(C/2979)

Arm.sup: ----- 1.2 2.8 0.1(0.04)
3.1(4.85)

Arm.inf: ----- 1.2 1.9 2.1 1.3 ----- 1.2(0.99) 2.1(2.24)

Moment.: -0.1 1.1 2.6 2.9 1.8 -0.9 -4.6 -0.1(0.03) 1.4(0.99) 3.0(2.24)
-4.7(4.95)

Cortant.: ----- 2.1 1.1 -0.5 -2.3 -4.1 ----- 2.7(x= 0.10)
-5.6(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.82) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.67=3.75) ----- 2Ø12.5(1.70>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.25=5.40)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.136 cm.
(C/3679)

Arm.sup: 2.8 1.2 ----- 1.8 2.9(0.08)
1.9(4.87)

Arm.inf: ----- 1.8 2.5 2.1 1.2 ----- 1.2(0.99) 2.6(2.66)
1.2(4.00)

Moment.: -4.6 -0.8 2.6 3.5 3.0 0.8 -2.9 -4.6(0.00) 0.6(0.99) 3.6(2.66)
1.4(4.00) -2.9(4.95)

Cortant.: ----- 3.9 2.1 0.2 -1.6 -3.3 ----- 5.2(x= 0.18)
-4.5(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x= 4.82) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.70+1.65=3.35), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø12.5(1.35>>)

Arm.Montagem: 2Ø5(2.50)

Arm.Inferior: 2Ø16(5.40)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.004 cm.
(C/95014)

Arm.sup: 1.8 1.2 ----- 1.2 2.4 1.8(0.03)
 2.4(3.97)

Arm.inf: ----- 1.2 1.4 1.7 1.3 1.2 ----- 1.2(0.79) 1.7(1.91)
 1.2(3.22)

Moment.: -2.9 -0.9 2.0 2.4 1.8 -1.4 -3.7 -2.9(0.00) 1.0(0.79) 2.4(1.91)
 0.6(3.22) -3.7(4.00)

Cortant.: ----- 2.5 1.2 -0.2 -1.6 -2.9 ----- 3.2(x= 0.18)
 -3.8(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
 3.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.35+2.45=3.80) ----- 1Ø12.5(0.90>>), 2Ø12.5(1.78>>)

Arm.Inferior: 2Ø12.5(4.35)

Estribos: 27x1Ø5c/0.14(3.72)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.326 cm.
(C/1838)

Arm.sup: 2.4 ----- 1.2 ----- 2.6(0.07)
 1.2(5.41)

Arm.inf: ----- 1.2 2.3 2.6 1.5 ----- 1.2(1.20) 2.7(2.66)
 0.1(5.96)

Moment.: -3.7 0.6 3.2 3.6 2.0 -0.8 0.1 -3.7(0.03) 1.3(1.20) 3.8(2.66)
 0.1(5.97) -1.5(5.41)

Cortant.: ----- 3.6 1.5 -0.6 -2.3 -2.2 ----- 5.4(x= 0.10)
 -2.8(x= 4.66)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 5.90) Lim.: 0.54

Arm.Superior: 1Ø12.5(<<0.90+1.20=2.10), 2Ø12.5(<<1.78+6.07+0.15D=8.00) -----

Arm.Inferior: 2Ø16(6.31+0.19D=6.50)

Estribos: 42x1Ø5c/0.14(5.80)

V 9 --- Grupo: 3

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.157 cm.
(C/3184)

Arm.sup: ----- 1.2 2.7 0.0(0.07)
 2.9(4.85)

Arm.inf: ----- 1.2 1.8 2.0 1.3 ----- 1.2(0.99) 2.1(2.41)

Moment.: -0.0 0.9 2.5 2.8 1.8 -0.8 -4.4 -0.0(0.04) 1.2(0.99) 2.9(2.41)

-4.4(4.95)

Cortant.: ----- 2.0 1.2 -0.4 -2.1 -3.9 ----- 2.1(x= 0.91)
-5.4(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.82=3.90) ----- 2Ø12.5(1.65>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.35=5.50)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.136 cm.
(C/3675)

Arm.sup: 2.7 1.2 ----- ----- ----- 1.7 2.7(0.08)
1.9(4.87)

Arm.inf: ----- 1.2 1.8 2.4 2.0 1.2 ----- 1.2(0.99) 2.5(2.66)
1.2(4.00)

Moment.: -4.4 -0.7 2.5 3.4 2.8 0.8 -2.8 -4.4(0.00) 0.5(0.99) 3.4(2.66)
1.3(4.00) -2.8(4.92)

Cortant.: ----- 3.7 2.0 0.2 -1.5 -3.2 ----- 5.0(x= 0.18)
-4.4(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.65+1.65=3.30), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø12.5(1.35>>)

Arm.Montagem: 2Ø5(2.50)

Arm.Inferior: 2Ø12.5(5.30)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P40*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.002 cm.
(C/179498)

Arm.sup: 1.7 1.2 ----- ----- ----- 1.2 2.4 1.7(0.03)
2.4(3.96)

Arm.inf: ----- 1.2 1.4 1.7 1.2 1.2 ----- 1.2(0.79) 1.7(1.91)
1.2(3.22)

Moment.: -2.8 -0.8 2.0 2.3 1.7 -1.4 -3.7 -2.8(0.00) 1.0(0.79) 2.3(1.91)
0.5(3.22) -3.7(4.00)

Cortant.: ----- 2.4 1.1 -0.2 -1.6 -2.9 ----- 3.0(x= 0.18)
-3.8(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
3.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.35+2.45=3.80) ----- 1Ø12.5(0.95>>), 2Ø10(1.86>>)

Arm.Inferior: 2Ø12.5(4.35)

Estribos: 27x1Ø5c/0.14(3.72)

Tramo nº 4 (*P40-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.332 cm.
(C/1807)

Arm.sup: 2.4 ----- 1.2 ----- 2.6(0.07)
1.2(5.41)

Arm.inf: ----- 1.2 2.3 2.6 1.5 ----- 1.2(1.20) 2.7(2.66)
0.1(5.96)

Moment.: -3.7 0.6 3.2 3.6 2.0 -0.8 0.1 -3.7(0.03) 1.3(1.20) 3.7(2.66)
0.1(5.97) -1.5(5.41)

Cortant.: ----- 3.5 1.5 -0.6 -2.3 -2.2 ----- 5.4(x= 0.10)
-2.7(x= 4.66)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
5.90) Lim.: 0.54

Arm.Superior: 1Ø12.5(<<0.95+1.20=2.15), 2Ø10(<<1.86+6.07+0.12D=8.05) -----

Arm.Inferior: 2Ø16(6.31+0.19D=6.50)

Estribos: 42x1Ø5c/0.14(5.80)

V 10 --- Grupo: 3

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.160 cm.
(C/3124)

Arm.sup: ----- 1.2 2.8 0.1(0.04)
3.1(4.85)

Arm.inf: ----- 1.2 1.8 2.0 1.2 ----- 1.2(0.99) 2.1(2.22)

Moment.: -0.1 1.0 2.6 2.9 1.7 -1.0 -4.6 -0.1(0.03) 1.4(0.99) 2.9(2.22)
-4.7(4.95)

Cortant.: ----- 2.0 1.1 -0.5 -2.2 -4.1 ----- 2.6(x= 0.10)
-5.6(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø6.3(0.08D+3.57=3.65) ----- 2Ø12.5(1.70>>), 1Ø10(1.00>>)

Arm.Inferior: 2Ø12.5(0.15D+5.25=5.40)

Estribos: 34x1Ø5c/0.14(4.72)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.133 cm.
(C/3771)

Arm.sup: 2.8 1.2 ----- 1.2 1.8 2.8(0.05)
2.0(4.87)

Arm.inf: ----- 1.2 1.8 2.5 2.1 1.2 ----- 1.2(0.99) 2.5(2.66)
1.2(4.00)

Moment.: -4.6 -0.8 2.6 3.5 2.9 0.8 -2.9 -4.6(0.00) 0.6(0.99) 3.5(2.66)
1.3(4.00) -2.9(4.92)

Cortant.: ----- 3.8 2.0 0.2 -1.6 -3.3 ----- 5.1(x= 0.18)
-4.5(x= 4.82)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
4.82) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.70+1.65=3.35), 1Ø10(<<1.00+1.00=2.00) ----- 2Ø12.5(1.35>>)

Arm.Montagem: 2Ø5(2.45)

Arm.Inferior: 2Ø16(5.40)

Estribos: 34x1Ø5c/0.14(4.65)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.003 cm.
(C/127861)

Arm.sup: 1.8 1.2 ----- 1.2 2.3 1.8(0.03)
2.3(3.96)

Arm.inf: ----- 1.2 1.4 1.6 1.2 1.2 ----- 1.2(0.79) 1.7(1.91)
1.2(3.22)

Moment.: -2.9 -0.9 1.9 2.3 1.7 -1.3 -3.6 -2.9(0.00) 0.9(0.79) 2.3(1.91)
0.6(3.22) -3.6(4.00)

Cortant.: ----- 2.5 1.2 -0.1 -1.5 -2.8 ----- 3.1(x= 0.18)
-3.7(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.18) 0.00(x=
3.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<4.00>>) -----

Arm.Inferior: 2Ø12.5(4.30)

Estribos: 27x1Ø5c/0.14(3.72)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.346 cm.
(C/1734)

Arm.sup: 2.3 ----- 1.2 ----- 2.5(0.07)
 1.2(5.41)

Arm.inf: ----- 1.2 2.3 2.6 1.4 ----- 1.2(1.20) 2.7(2.66)
 0.1(5.96)

Moment.: -3.6 0.7 3.2 3.6 2.0 -0.8 0.1 -3.6(0.03) 1.4(1.20) 3.8(2.66)
 0.1(5.97) -1.5(5.41)

Cortant.: ----- 3.5 1.4 -0.6 -2.3 -2.2 ----- 5.3(x= 0.10)
 -2.7(x= 4.66)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
 5.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<5.35+1.40=6.75) ----- 2Ø10(1.88+0.12D=2.00)

Arm.Montagem: 2Ø5(3.25)

Arm.Inferior: 2Ø16(6.31+0.19D=6.50)

Estribos: 42x1Ø5c/0.14(5.80)

V 11 --- Grupo: 3

Tramo nº 1 (*P42-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.128 cm.
(C/3913)

Arm.sup: ----- 1.2 2.7 1.2(0.41)
2.7(4.93)

Arm.inf: ----- 1.2 1.5 1.8 1.2 ----- 1.2(0.99) 1.8(2.41)

Moment.: -0.1 0.5 2.0 2.5 1.6 -0.7 -4.1 -0.1(0.41) 0.8(0.99) 2.5(2.41)
-4.1(5.00)

Cortant.: ----- 1.8 1.2 -0.2 -1.8 -3.5 ----- 2.0(x= 0.10)
-4.8(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
4.90) Lim.: 0.54

Arm.Superior: 2Ø10(0.12D+5.07>>) ----- 1Ø12.5(1.10>>)

Arm.Inferior: 2Ø12.5(0.15D+5.30=5.45)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.161 cm.
(C/3097)

Arm.sup: 2.7 1.2 ----- 1.7 2.7(0.07)
1.8(4.94)

Arm.inf: ----- 1.2 1.8 2.5 2.1 1.2 ----- 1.2(0.99) 2.5(2.66)
1.2(4.00)

Moment.: -4.1 -0.5 2.5 3.5 3.0 1.0 -2.6 -4.1(0.00) 0.6(0.99) 3.5(2.66)
1.5(4.00) -2.6(4.99)

Cortant.: ----- 3.6 2.0 0.3 -1.5 -3.1 ----- 5.1(x= 0.10)
-4.3(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø10(<<5.19+1.56=6.75), 1Ø12.5(<<1.10+1.10=2.20) ----- 2Ø12.5(1.20>>)

Arm.Montagem: 2Ø5(2.75)

Arm.Inferior: 2Ø16(5.35)

Estribos: 35x1Ø5c/0.14(4.80)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.005 cm.
(C/74107)

Arm.sup: 1.7 1.2 ----- 1.2 2.5 1.7(0.06)
2.6(3.94)

Arm.inf: ----- 1.2 1.5 1.8 1.3 1.2 ----- 1.2(0.79) 1.8(1.91)
1.2(3.22)

Moment.: -2.6 0.9 2.2 2.5 1.8 -1.5 -3.9 -2.6(0.00) 1.2(0.79) 2.5(1.91)
0.5(3.22) -3.9(4.00)

Cortant.: ----- 2.4 1.1 -0.3 -1.7 -3.0 ----- 3.2(x= 0.10)
-4.0(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 3.90) Lim.: 0.54

Arm.Superior: 2Ø12.5(<<1.20+2.45=3.65) ----- 1Ø12.5(1.05>>), 2Ø10(1.81>>)

Arm.Inferior: 2Ø12.5(4.30)

Estribos: 28x1Ø5c/0.14(3.80)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.325 cm.
(C/1847)

Arm.sup: 2.5 ----- 1.2 ----- 2.7(0.07)
1.2(5.41)

Arm.inf: ----- 1.2 2.3 2.6 1.4 ----- 1.2(1.20) 2.7(2.66)
0.1(5.96)

Moment.: -3.9 0.6 3.2 3.6 2.0 -0.8 0.1 -3.9(0.03) 1.3(1.20) 3.7(2.66)
0.1(5.97) -1.5(5.41)

Cortant.: ----- 3.6 1.5 -0.6 -2.3 -2.2 ----- 5.5(x= 0.10)
-2.7(x= 4.66)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 5.90) Lim.: 0.54

Arm.Superior: 1Ø12.5(<<1.05+1.20=2.25), 2Ø10(<<1.81+6.07+0.12D=8.00) -----

Arm.Inferior: 2Ø16(6.31+0.19D=6.50)

Estribos: 42x1Ø5c/0.14(5.80)

V 12 --- Grupo: 3

Tramo nº 1 (*P43-P42*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.747 cm. (C/669)

Arm.sup: 0.1 ----- 1.2 8.0 0.2(0.04)
8.0(4.99)

Arm.inf: ----- 2.9 5.5 5.8 3.5 ----- 3.5(0.99) 6.0(2.16)
1.2(4.00)

Moment.: -0.2 4.1 7.6 8.0 5.0 -1.5 -11.6 -0.2(0.03) 4.9(0.99) 8.3(2.16)
0.0(4.00)-11.6(5.00)

Cortant.: ----- 5.4 2.3 -1.5 -5.5 -9.5 ----- 7.8(x= 0.10)
-13.0(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø8(0.10D+3.65=3.75) ----- 4Ø16(1.75>>), 1Ø16(1.05>>)

Arm.Inferior: 3Ø16(0.19D+5.36=5.55), 1Ø10(4.00)

Estribos: 27x1Ø8c/0.15(4.00), 7x1Ø8c/0.13(0.80)

Tramo nº 2 (*P42-P41*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.344 cm. (C/1454)

Arm.sup: 8.0 2.6 ----- 3.9 9.4(0.10)
4.1(4.94)

Arm.inf: ----- 1.7 3.5 3.2 1.2 ----- 3.7(2.66)
1.5(4.01)

Moment.: -11.6 -3.7 2.4 5.0 4.5 1.1 -6.0 -12.1(0.06) 5.1(2.66)
2.0(4.01) -6.0(4.99)

Cortant.: ----- 8.9 5.0 1.2 -2.2 -6.9 ----- 12.7(x= 0.10)
-10.5(x= 4.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 4Ø16(<<1.75+2.05=3.80), 1Ø16(<<1.05+1.60=2.65) ----- 2Ø16(1.40>>),

1Ø10(1.00>>)

Arm.Montagem: 2Ø8(2.05)

Arm.Inferior: 2Ø16(5.75)

Estribos: 6x1Ø8c/0.14(0.80), 27x1Ø8c/0.15(4.00)

Tramo nº 3 (*P41-P41*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= -0.064 cm.
(C/-6240)

Arm.sup: 3.9 1.9 1.2 1.2 1.2 1.3 2.8 4.0(0.06)
3.0(3.91)

Arm.inf: ----- 1.2 1.2 1.6 1.5 1.2 ----- 1.2(0.79) 1.7(2.16)
1.2(3.22)

Moment.: -6.0 -2.7 1.6 2.3 2.0 -1.9 -4.3 -6.0(0.00) 0.3(0.79) 2.3(2.16)
1.1(3.22) -4.4(3.96)

Cortant.: ----- 3.6 1.7 0.4 -1.1 -3.0 ----- 6.7(x= 0.10)
-5.3(x= 3.90)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.01(x= 0.10) 0.00(x=
3.90) Lim.: 0.54

Arm.Superior: 2Ø16(<<4.00>>), 1Ø10(<<1.00+0.80=1.80) -----

Arm.Inferior: 2Ø12.5(4.40)

Estribos: 7x1Ø5c/0.12(0.80), 22x1Ø5c/0.14(3.00)

Tramo nº 4 (*P41-P40*) (C= 6.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.363 cm.
(C/1654)

Arm.sup: 2.8 ----- ----- ----- ----- 1.2 ----- 2.8(0.01)
1.2(5.41)

Arm.inf: ----- 1.2 2.4 2.6 1.6 ----- ----- 1.2(1.20) 2.7(2.66)
1.2(4.81)

Moment.: -4.3 0.9 3.3 3.7 2.3 -0.3 0.0 -4.3(0.00) 1.6(1.20) 3.8(2.66)
0.2(4.81) -1.0(5.41)

Cortant.: ----- 3.5 1.4 -0.5 -2.1 -2.3 ----- 7.7(x= 0.10)
-2.6(x= 4.66)

Torsores: ----- 0.00 0.00 0.00 0.00 0.00 ----- Extr. apoio: 0.00(x= 0.10) 0.00(x=
5.90) Lim.: 0.54

Arm.Superior: 2Ø16(<<5.40+1.45=6.85) ----- 2Ø10(5.03+0.12D=5.15)

Arm.Inferior: 2Ø16(6.41+0.19D=6.60)

Estribos: 6x1Ø6.3c/0.14(0.80), 30x1Ø6.3c/0.17(5.00)

Tramo nº 1 (*PE4-PE4*) (C= 5.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.879 cm.
(C/569)

Arm.sup:	0.1	-----	-----	-----	-----	1.2	6.5	0.2(0.04)
6.8(4.93)								
Arm.inf:	-----	3.9	6.4	6.4	4.0	-----	-----	4.5(0.99) 6.8(2.16)
1.2(4.00)								
Moment.:	-0.2	5.4	8.7	8.7	5.6	-0.6	-9.8	-0.2(0.03) 6.2(0.99) 9.1(2.16)
0.8(4.00) -9.8(5.00)								
Cortant.:	-----	5.5	2.0	-1.8	-5.5	-9.2	-----	8.5(x= 0.10)
-13.3(x= 4.90)								
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.10) 0.00(x= 4.90) Lim.: 0.54

Arm.Superior: 2Ø8(0.10D+3.85=3.95) ----- 3Ø16(1.50>>), 1Ø12.5(1.00>>)

Arm.Inferior: 3Ø16(0.19D+5.36=5.55), 1Ø10(4.25)

Estribos: 27x1Ø8c/0.15(4.00), 7x1Ø8c/0.12(0.80)

Tramo nº 2 (*PE4-PE4*) (C= 4.00) Viga alta Tipo R Seção B*H = 20 X 40 Flecha= 0.136 cm.
(C/2933)

Arm.sup:	6.5	2.4	-----	-----	-----	-----	-----	6.8(0.07)
0.1(3.96)								
Arm.inf:	-----	1.7	3.4	3.6	2.5	0.3	-----	3.7(2.41)
2.8(3.22)								
Moment.:	-9.8	-3.3	2.3	4.7	5.1	3.6	0.5	-9.8(0.00) 5.2(2.41)
3.9(3.22) -0.1(3.97)								
Cortant.:	-----	8.0	4.9	2.0	-0.9	-3.3	-----	12.4(x= 0.10)
-4.8(x= 3.90)								
Torsores:	-----	0.00	0.00	0.00	0.00	0.00	-----	Extr. apoio: 0.00(x= 0.10) 0.00(x= 3.90) Lim.: 0.54

Arm.Superior: 3Ø16(<<1.50+1.75=3.25), 1Ø12.5(<<1.00+1.00=2.00) -----
2Ø8(2.55+0.10D=2.65)

Arm.Inferior: 2Ø16(4.46+0.19D=4.65)

Estribos: 7x1Ø8c/0.13(0.80), 20x1Ø8c/0.15(3.00)