Show

Interaction Curve

Function

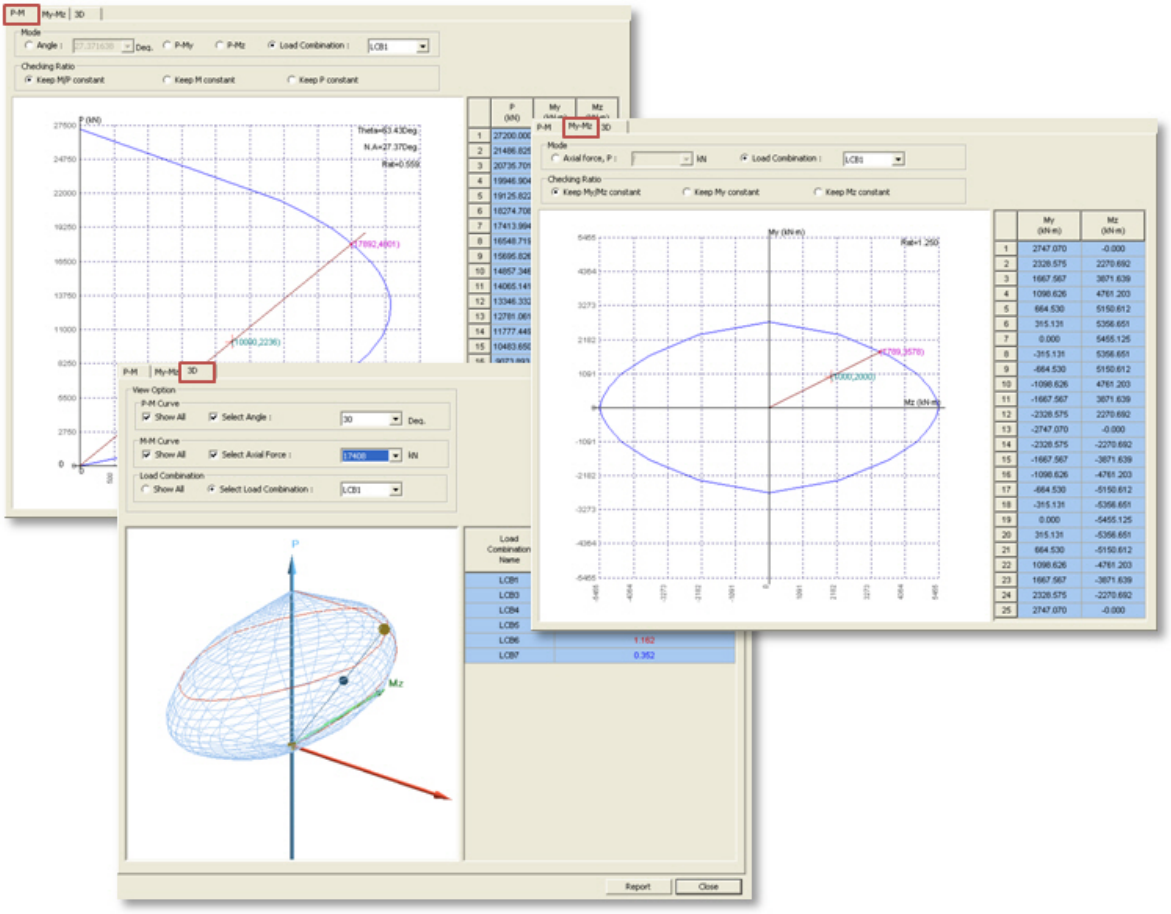
Display the P-M, My-Mz, and 3D P-M interaction curve applicable for the entered axial force and biaxial moments.

Call

From the **Main Menu** select **Results > Interaction Curve.**

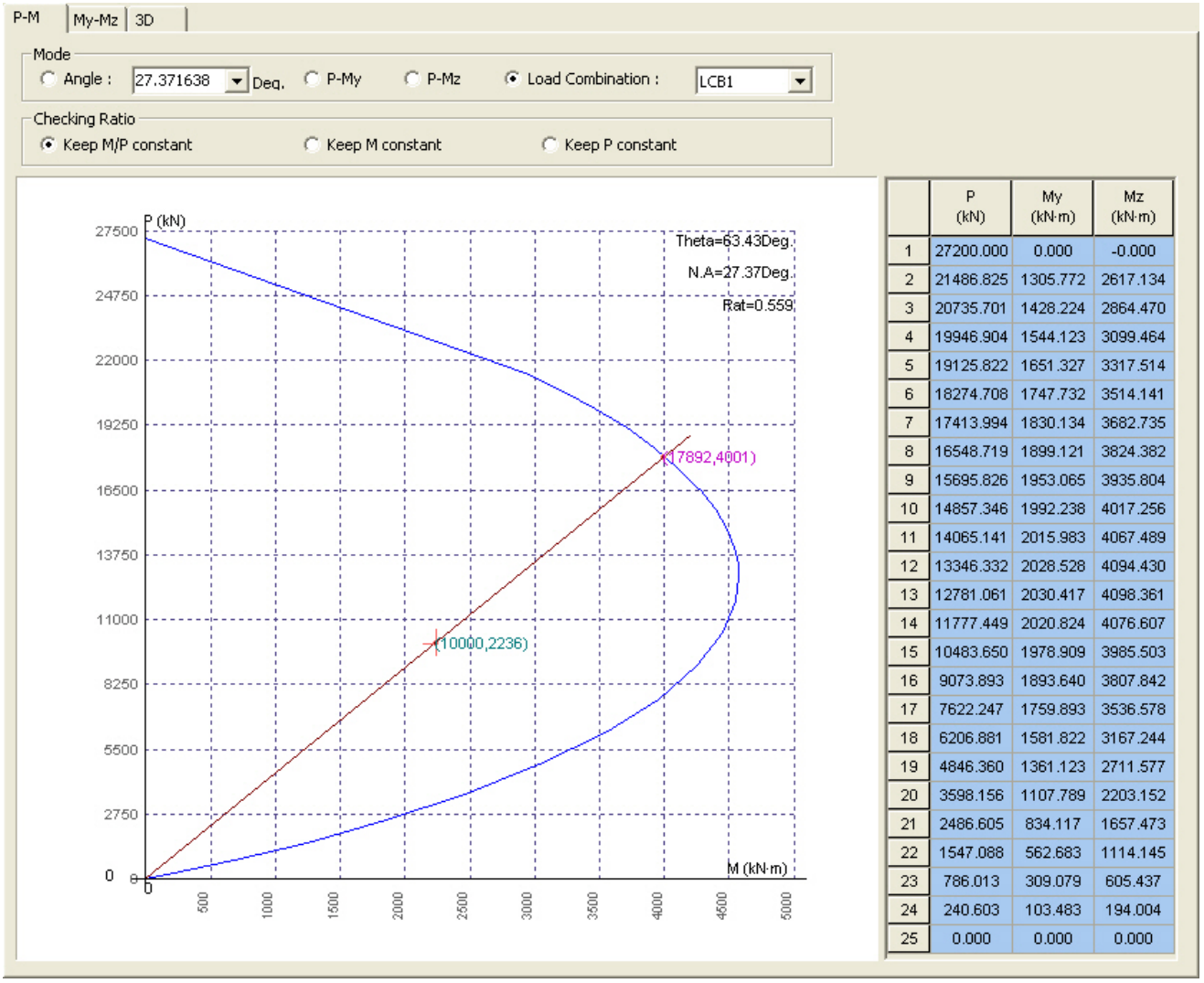
Click  **Interaction Curve** in the **Icon Menu**.

Input



Interaction Curve dialog box

[P-M Interaction Curve]



	P (kN)	My (kN·m)	Mz (kN·m)
1	27200.000	0.000	-0.000
2	21486.825	1305.772	2617.134
3	20735.701	1428.224	2864.470
4	19946.904	1544.123	3099.464
5	19125.822	1651.327	3317.514
6	18274.708	1747.732	3514.141
7	17413.994	1830.134	3682.735
8	16548.719	1899.121	3824.382
9	15695.826	1953.065	3935.804
10	14857.346	1992.238	4017.256
11	14065.141	2015.983	4067.489
12	13346.332	2028.528	4094.430
13	12781.061	2030.417	4098.361
14	11777.449	2020.824	4076.607
15	10483.650	1978.909	3985.503
16	9073.893	1893.640	3807.842
17	7622.247	1759.893	3536.578
18	6206.881	1581.822	3167.244
19	4846.360	1361.123	2711.577
20	3598.156	1107.789	2203.152
21	2486.605	834.117	1657.473
22	1547.088	562.683	1114.145
23	786.013	309.079	605.437
24	240.603	103.483	194.004
25	0.000	0.000	0.000

✓Mode

Angle: Display the P-M curve for the entered angle measured from the local y-axis.

P-My: Display the P-My curve. (Angle = 0 deg.)

P-Mz: Display the P-Mz curve. (Angle = 90 deg.)

Load Combination: Display the P-M curve for the angle corresponding to the selected load combination.

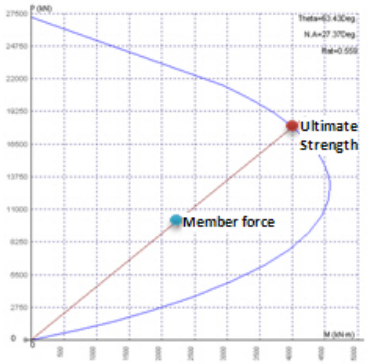
✓Checking Ratio

This option is activated when "Load Combination" is selected in the Mode option.

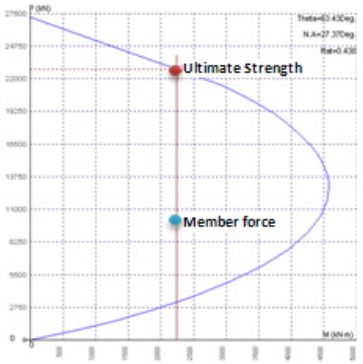
Keep M/P Constant: Display the ratio (Rat. = Member Force / Ultimate Strength) when the ultimate strength is determined based on the same eccentricity ratio as the specified load combination (P, My and Mz).

Keep M Constant: Display the ratio (Rat. = Member Force / Ultimate Strength) when the ultimate strength is determined based on the same biaxial moment as the specified load combination (My and Mz).

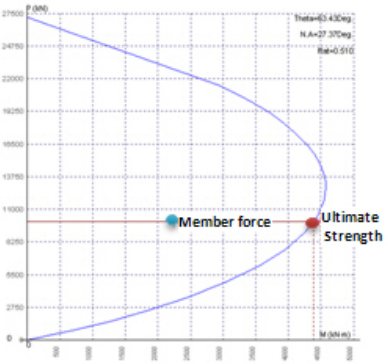
Keep P Constant: Display the ratio (Rat. = Member Force / Ultimate Strength) when the ultimate strength is determined based on the same axial force as the specified load combination (P).



Keep M/P Constant



Keep M Constant



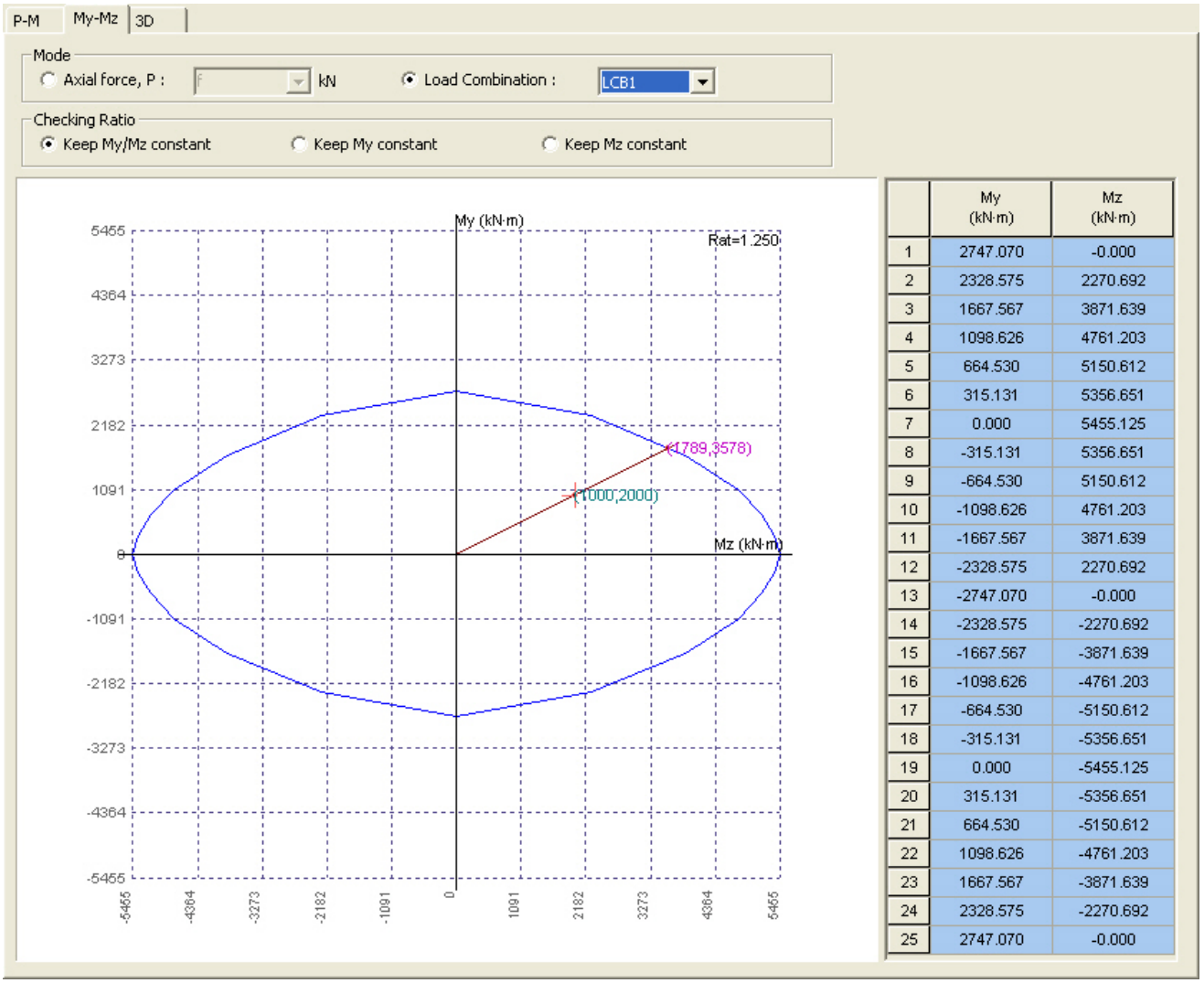
Keep P Constant

Theta: Angle between the Moment axis (horizontal axis) and the line which connects the origin point to the member force point in PM interaction curve

N.A.: Neutral axis angle from the local y-axis

Rat.: Strength ratio (Member force / Ultimate Strength)

[My-Mz Interaction Curve]



	My (kN·m)	Mz (kN·m)
1	2747.070	-0.000
2	2328.575	2270.692
3	1667.567	3871.639
4	1098.626	4761.203
5	664.530	5150.612
6	315.131	5356.651
7	0.000	5455.125
8	-315.131	5356.651
9	-664.530	5150.612
10	-1098.626	4761.203
11	-1667.567	3871.639
12	-2328.575	2270.692
13	-2747.070	-0.000
14	-2328.575	-2270.692
15	-1667.567	-3871.639
16	-1098.626	-4761.203
17	-664.530	-5150.612
18	-315.131	-5356.651
19	0.000	-5455.125
20	315.131	-5356.651
21	664.530	-5150.612
22	1098.626	-4761.203
23	1667.567	-3871.639
24	2328.575	-2270.692
25	2747.070	-0.000

✓Mode

Axial force, P: Display the My-Mz curve for the entered axial force.

Load Combination: Display the My-Mz curve for the axial force corresponding to the selected load combination.

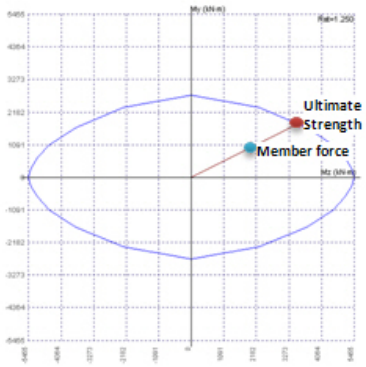
✓Checking Ratio

This option is activated when "Load Combination" is selected in the Mode option.

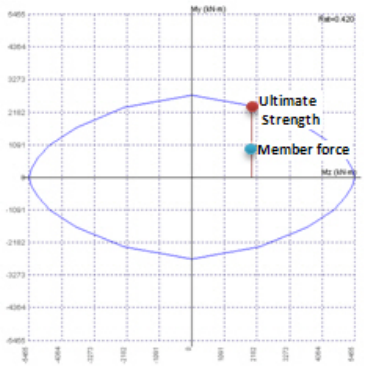
Keep My/Mz constant: Display the ratio (Rat. = Member Force / Ultimate Strength) when the ultimate strength is determined based on the same eccentricity ratio as the specified load combination (My and Mz).

Keep My constant: Display the ratio (Rat. = Member Force / Ultimate Strength) when the ultimate strength is determined based on the same flexural moment as the specified load combination (My).

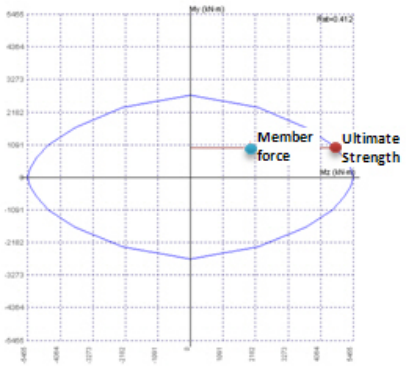
Keep Mz constant: Display the ratio (Rat. = Member Force / Ultimate Strength) when the ultimate strength is determined based on the same flexural moment as the specified load combination (Mz).



Keep M/P Constant

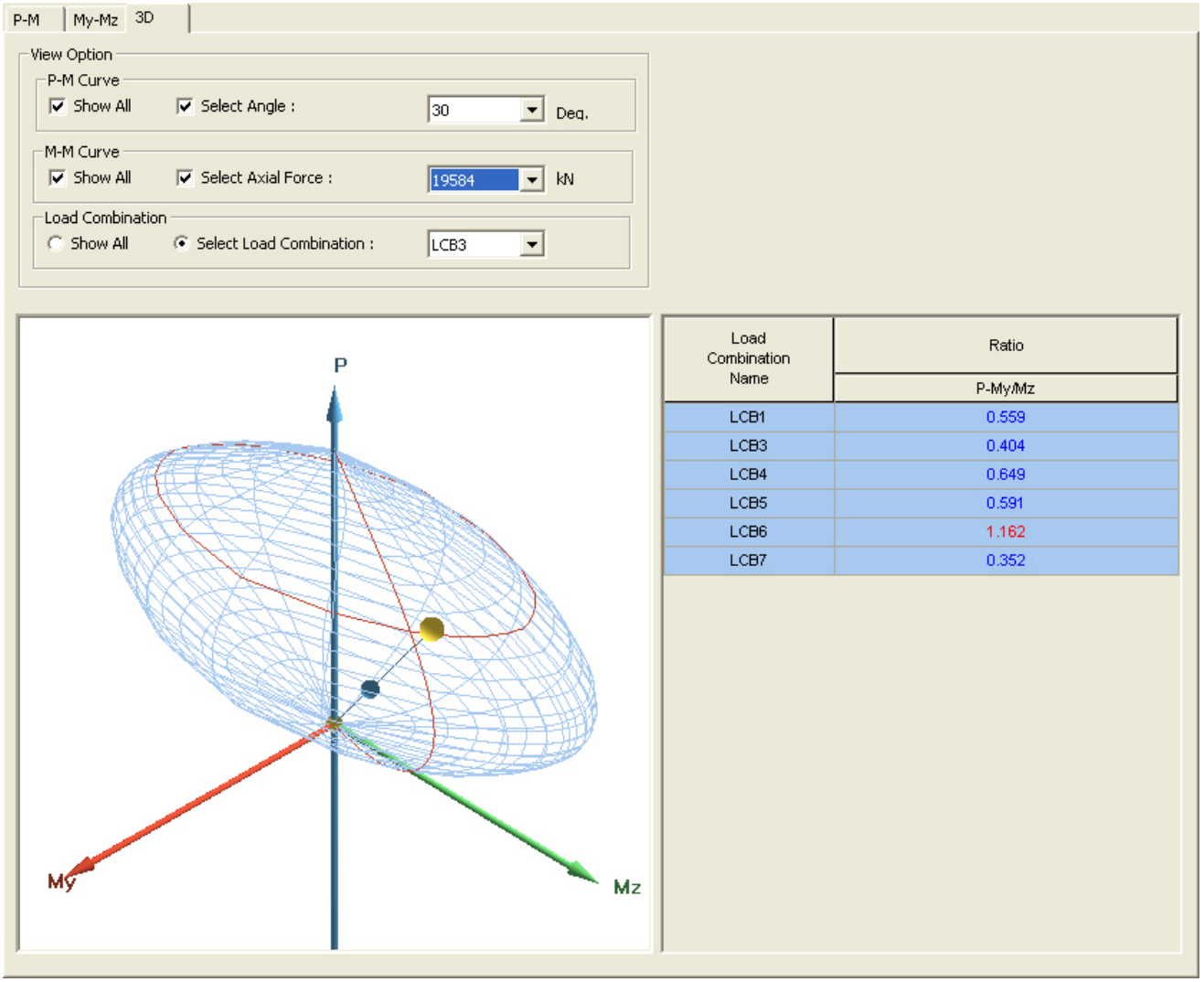


Keep M Constant



Keep P Constant

[3D Interaction Curve]



✓**P-M Curve**

Show All: Display the P-M curves for every 15 deg. in the 3D interaction diagram.

Select Angle: Display the P-M curve for the selected angle from the local Y-axis in the 3D interaction diagram.

✓**M-M Curve**

Show All: Display the My-Mz curves in the 3D interaction diagram. Ultimate axial force is divided into 24 points to produce the My-Mz curve.

Select Axial Force:Display the My-Mz curve for the selected axial force in the 3D interaction diagram.

✓**Load Combination**

Show All: Display the member force point and the ultimate strength point in the 3D interaction curve for all the load combinations.

Select Load Combination: Display the member force point and the ultimate strength point in the 3D interaction curve for all the selected load combination.

✓Table

Strength ratio for each load combination can be checked in the table. The ultimate strength is determined based on the same eccentricity ratio as the specified load combination (P, My and Mz).

✓Report

Click Report to generate the report in Microsoft Excel format. The generated excel file is saved in the same folder as the one that the *.mgs model file has been saved.