範例:天車梁移動載重(Moving Load)模擬



◆ 移動載重 (Moving Load) 建立步驟說明:

(1) 利用 Load>Moving Load Analysis Data>Moving Load Code 設定參照規範 (Taiwan)

Select Moving Load Code		
Moving Load Code :	Taiwan	•
	OK	Cancel

(2) 利用 Load>Moving Load Analysis Data>Traffic Line Lanes 建立移動載重路線



(3) 利用 Load>Moving Load Analysis Data>Vehicles 定義載重資料

Vehicle Name Type Add Skandard inside drum conveyor User Defined Add User Defined Modify Delete Image: Close	
Define User Defined Yehicular Load Load Type Truck/Lane Train Load Train Load Vehicular Load Properties Inside drum conveyor Vehicular Load Name : Inside drum conveyor Truck Load P1 P2 P3 Pn-1 Pn Image: P2 P3 Pn-1 Pn Pn Image: P1 P2 P3 Pn-1 Pn Image: P2 P3 Pn-1 Pn Pn Image: P3 P1 P2 P3 Pn-1 Pn Image: P4 P1 P2 P3 P1 P1 P1 Image: P3 P1 P2 P3 P1 P1 P2 P3 P3 P4 P4 P4 P4	750 kg 890 kg 145kg 4 8050 mm 1525 mm
Truck Load P# D# 145 Add No Load(kgf) 1 750 8050 2 890 1525 3 145 end PLW 0 kaf PLV 0 kaf QK Cancel Apply	

(4) 利用 Load>Moving Load Analysis Data>Vehicles Classes 定義載重組

	Vehicle Class Data	
Yehicle Classes Add Class Name Add I.D.C. Modify Delete Delete	Vehicle Class Name : T.D.C. Vehicle Load Select insid	ted Load e drum conveyor
	<u>OK</u> <u>Cancel</u>	Apply

(5) 利用 Load>Moving Load Analysis Data>Moving Load Case 定義移動載重狀況

Define Moving Load Case	Sub - Load Case
Load Case Name : MV1 Description : Load Case for Permit Vehicle Multiple Presence Factor Num of Loaded Lanes Scale Factor 1 1 1 2 1 3 0.9 > 3 0.75 Sub-Load Cases Loading Effect C Combined Independent Vehicle class Scale Lane1 VC:I.D.C. 1 1 Add Modify Delete	Load Case Data Vehicle Class : VC:I.D.C. Scale Factor : 1 Min. Number of Loaded Lanes : 0 Max. Number of Loaded Lanes 1 Assignment Lanes List of Lanes Selected Lanes 1 -> QK <u>Cancel</u>
Add Modify Delete QK Cancel Apply	

(6) 利用 Analysis>Moving Load Analysis Control 定義移動載重分析控制項

Moving Load Analy	sis Control Data	×
┌─ Truck/Train Load Co	ntrol Option	
Analysis Method -	C Pivot C Quick	
Load Point Selectio Influence Lin	n ne Dependent Point C All Points	
 Influence Generati Number/Line 	ng Points Element : 4	
C Distance bet	ween Points : 0 mm	
Analysis Results	Frame C Normal	
C Center + Noda	al Normal + Concurrent Force Torce Combined Stress Calculation	
Calculation Filters -]
All	O Group :	
 Displacements All 	C Group :	
Forces/Moment	s 🔿 Group : 📃 💌	
	OK Cancel	

(7) Perform Analysis 執行分析

(8) 利用 Results>Influence Lines>Reactions... / Displacements... / Beam Forces/Moments... 等功能查 看 反力/變形/內力 等影響線結果



A. 反力影響線 - Key Node: 4 , Component: FZ



B. 梁內力影響線 - Key Element: 32, Parts: 1/2, Component: My



(9) 利用 Results>Moving Load Tracer>Reactions... / Displacements... / Beam Forces/Moments... 等功 能查看造成最大/最小 反力/變形/內力 等結果下,移動載重位置。



A. 反力 – Key Node: 4 , Component: FZ



找到造成節點 4 最大反力的移動載重加載位置後,可用 Write Min/Max Load to File 功能將該筆資 訊寫到 mgt 語法格式。

MIDAS/Text Editor - [MYmaxMY1Fz4.mgt]		<
🚰 File Edit <u>V</u> iew <u>W</u> indow <u>H</u> elp	_ 8 ;	×
D 🖆 🖬 😂 🔃 👗 🖻 🖻 📕 🖊 🙀 😂 😂 📕 🔺 ⅔ 🧏 🚸 A 🕂 🔂 🕫 🖽 🗖	<u> </u> ?	
00012 00013 *STLDCASE ; Static Load Cases 00014 ; LCNAME, LCTYPE, DESC 00015 MVmaxMV1Fz4, USER, 00016 00017 *USE-STLD, MVmaxMV1Fz4		
BEAMLOAD ; Element Beam Loads 00019 ; ELEM_LIST, CMD, TYPE, DIR, bPROJ, D1, P1, D2, P2, D3, P3, D4, P4, GROUP 00021 33, BEAM , CONLOAD, GZ, NO 0.44270833333, -145, 0.0000000000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	0, 0, 0, _	
Ready Ln 4/24, Col 87	NUM	//

MIDAS Taiwan 台灣邁達斯

B. 梁內力 – Key Element: 13 , Parts: 3/4 , Component: My



同樣用 Write Min/Max Load to File 功能將該筆資訊寫到 mgt 語法格式。

[批次輸出功能]

User 可利用 Results>Batch Conversion for MVLTRC to Static Load... 功能批次輸出造成最大/最小反力/變形/內力 等結果下,移動載重位置到文字檔。