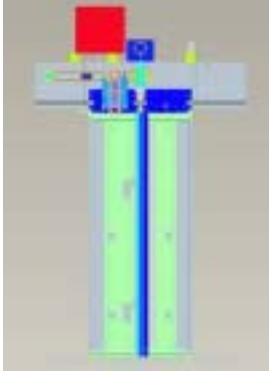

Elevator Door System

Introduction



Method

3D CAD and ReCurdyn modeling



Elevator door system CAD modeling

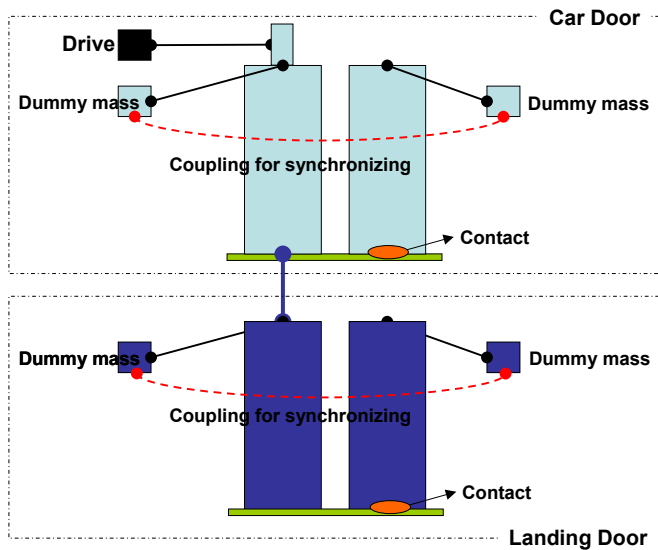
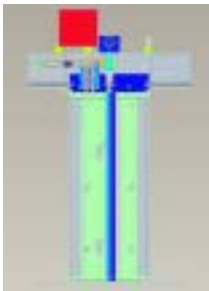
Input
- joint property, friction coefficient, spring coefficient,
damping Coefficient

- 3D CAD modeling using Pro-Engineer
- Elevator door system modeling
- Simplify the modeling
 - > remove hole and unnecessary part
- 3D CAD modeling file type convert to use in ReCurdyn



Elevator door system ReCurdyn modeling

Method



Method

Elevator door system test



- Elevator operation condition check :
- Velocity profile : using tachometer
- Acceleration profile : using accelerometer



Compared with
Recurdyn dynamic simulation result

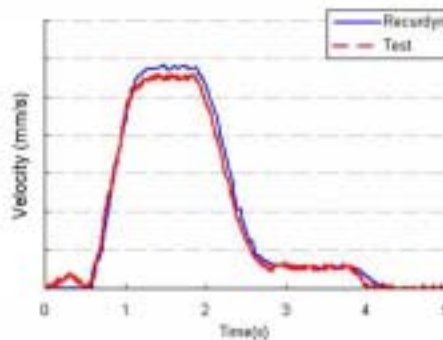
<Test Condition>

Case	Mass	Velocity	Acceleration	Adding Mass 1: □ kg 2: Δ kg 3: ○ kg
	A	B	C	
1	1	1	1	Velocity 1: a mm/s 2: b mm/s 3: c mm/s
2	1	2	2	
3	1	3	3	
4	2	1	2	Acceleration 1: x mm/s ² 2: y mm/s ² 3: z mm/s ²
5	2	2	3	
6	2	3	1	
7	3	1	3	
8	3	2	1	
9	3	3	3	

* Velocity profile apply to ReCurdyn modeling and simulate

Result

1. Elevator door system operation velocity



Result

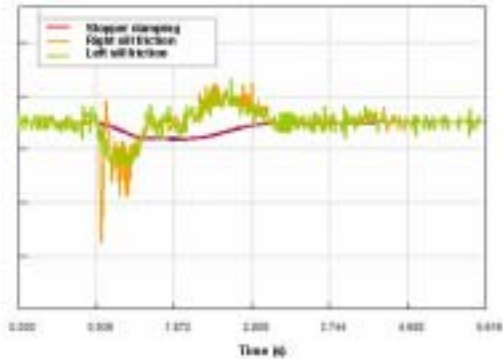
2. Damping on coupler stopper and friction of door sills



<stopper>



<door sill>



Conclusion

1. Application Possibility

- Verify an application possibility for the ReCurdyn program to elevator door system
- Reduce the number of tests in test bench
- Reduce the cost and time for test

2. Various application

- various test condition : mass, velocity, acceleration, friction, spring or damping coefficient

3. Calculate reaction force and inertia force