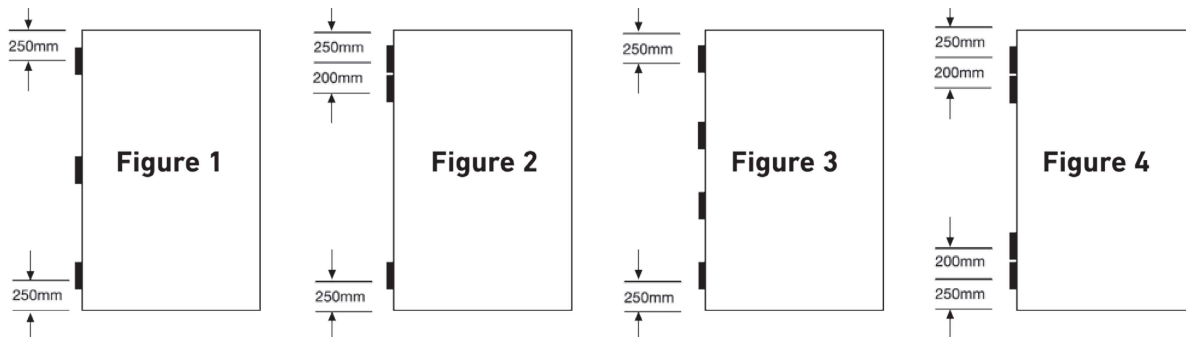**EUROSPEC**

Selecting a hinge by door weight alone is bad practice. In order to ensure the correct hinge is specified, you need to understand the intended use of the building and calculate the overall door mass accordingly. The overall door mass includes, door weight, allowances for frequency of use, excess width side loading, the inclusion of door closers and all other door hardware. Follow the simple code of practice to ensure correct hinge specification - if in doubt, seek assistance from the manufacturer.

CALCULATE DOOR WEIGHT TO ACTUAL DOOR MASS		
ACTUAL DOOR WEIGHT	Doors with excessive width, refer to side loading calculation table +?%	**= ACTUAL DOOR MASS**
	Door closer +20%	
	Door closer (incorporating back check or hold open facility) +75%	
	Light usage application -10% Extra heavy usage application +10%	

SIDE LOADING CALCULATION TABLE				
CALCULATE EXCESSIVE DOOR WIDTH	**Door Height (mm)**	**Door Width (mm)**	**Factor**	**Increase In Door Mass Required**
The actual door mass will require increasing by the factor calculated between the door height and the door width.	2000	1000	2.00	0%
	2000	1050	1.90	+10%
This is calculated by dividing the door height by the door width.	2000	1100	1.82	+18%
	2000	1150	1.74	+26%
If the factor is less than 2, the door mass is required to be increased by the value between the factor and 2, expressed as a percentage.	2000	1200	1.67	+33%
	2000	1250	1.60	+40%
Percentage examples are listed in the table to the right.	2000	1300	1.54	+46%

HINGE SPACING : CODE OF PRACTICE

Figure 1

Figure 2

Figure 3

Figure 4

FIGURE 1: The standard practice and most common, providing maximum resistance to 'warping', hinges are spaced as shown.

FIGURE 2: Where overhead door closers are used, additional lateral forces are applied to the top hinge. Whilst this is taken into consideration within the design calculation, to reduce the lateral force to the top hinge, it is recommended that the hinges are spaced as shown.

FIGURE 3: Where the door width is more than 1000mm or the door mass exceeds that allowed for 3 hinges, additional hinges can be fitted. Equal spacing shown provides maximum resistance to 'warping', based on 4 hinges, the design door mass can be calculated as per 'side load calculation' table before determining the suitable grade of hinge.

FIGURE 4: Where overhead door closers are used within the example illustrated in Figure 3, due to the increased lateral forces created by the closer on the top hinge, it is recommended that the hinges are spaced as shown.

BUTT HINGE APPLICATIONS:

WASHERED/PLAIN HINGES

Hollow core panel doors
Light duty doors (housing)
FD30 (Grade 7/Grade 10/Grade 11)

BALL BEARING HINGES

Solid core doors
FD30 (Grade 11)
FD30/60 ((Grade 13/Grade 14)
Heavy/medium duty doors (offices/apartments)
Performance grade matched to door mass

SPECIALIST HINGE APPLICATIONS:

DOG BOLT/SECURITY HINGES

Used on external doors where the pin is
vulnerable to attack
Security stud which locks both leaves together when
in closed position

HOSPITAL TIP/ANTI LIGATURE HINGES

Used on doors where there is a potential for self harm
Bevelled knuckle to prevent ligature being applied
to the hinge

H2N/H3N HINGE APPLICATIONS

H2N/H3N HINGES

FD30/60 (Grade 13/Grade 14)
Maintenance free
Severe duty doors (hospitals/schools/public buildings)
Performance grade to suit door mass

H2N/H3N LIFT OFF HINGE APPLICATIONS

H2N/H3N LIFT OFF HINGES

Solid core doors
FD30 (Grade 11)
FD30/60 (Grade 13)
Heavy duty (offices/schools)
Frames and doors can be supplied at different
stages of the build
Allow for fast replacement of door, if damaged

PROJECTION HINGES

Projection hinges come in various shapes and sizes.
Most common are:

Parliament
Broad butt (projection varies by door thickness)

These are used to overcome architraves and frame details
when the door needs to open to 180°.

The "projection" is the distance between the face of the
door and the frame when the door is in the open position.

HINGE DRILLING PATTERNS

TEMPLATE 'ANSI' (most common)   **ZIG ZAG 'congruent'**   **STRAIGHT**