Vibration-damping elements - guidelines for the choosing

Basic data required

- disturbing frequency: the frequency of the disturbing vibration produced by an on-duty machine. In general, it is obtained by the number of rotations of the engine [Hz=r.p.m./60];
- the load applied to every single vibration-damping element [N];
- the isolation degree required [%];
- the deflection value of the vibration-damping element under a given load [mm];
- the rigidity [N/mm], that is to say the load that applied to the vibration-damping element produces a deflection of 1.0 mm.

How to choose the vibration-damping element

- with reference to the diagram for checking the isolation degree, intersect the disturbing frequency value with the isolation degree required (each isolation degree corresponds to a line in the diagram) and define the deflection [in mm];
- divide the load applied onto the vibration-damping element by the deflection value to obtain the required rigidity of the vibration-damping element;
- compare the rigidity obtained with the rigidity shown in the table and choose the vibration-damping element which presents the nearest value (lower) to the calculated one.
- the rigidity values reported in the table refer to the maximum load values

Check

- the deflection of the vibration-damping element chosen can be obtained in the graphs (DVA.6-DVA.7) on the basis of the load;
- intersect the disturbing frequency value with the vibration-damping element deflection value in the diagram to obtain the isolation degree offered by the vibration-damping element chosen;
- compare the obtained value with the isolation degree required.

Example

Conditions of use:

- disturbing frequency= 50 Hz (3,000 r.p.m.);
- load applied on each vibration-damping element 120 N;
- 90% isolation required;
- diagram shows that with a 50 Hz disturbing frequency and an isolation degree of 90%, the deflection obtained is 1.0 mm;
- divide the load applied by the deflection obtained to define the rigidity required, which is 120/1.0 = 120 N/mm;
- compare the rigidity value obtained (120 N/mm) with the values reported in the table;
- the values reported in table, for type DVA.1, show that the vibration-damping element which should be used is DVA.1-25-20-M6-18-55.

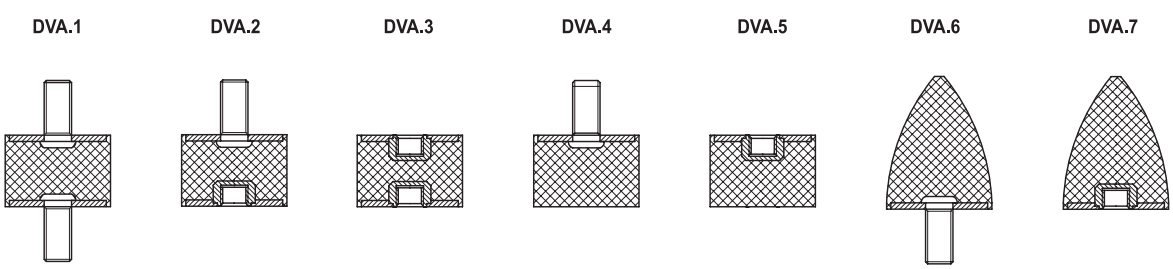
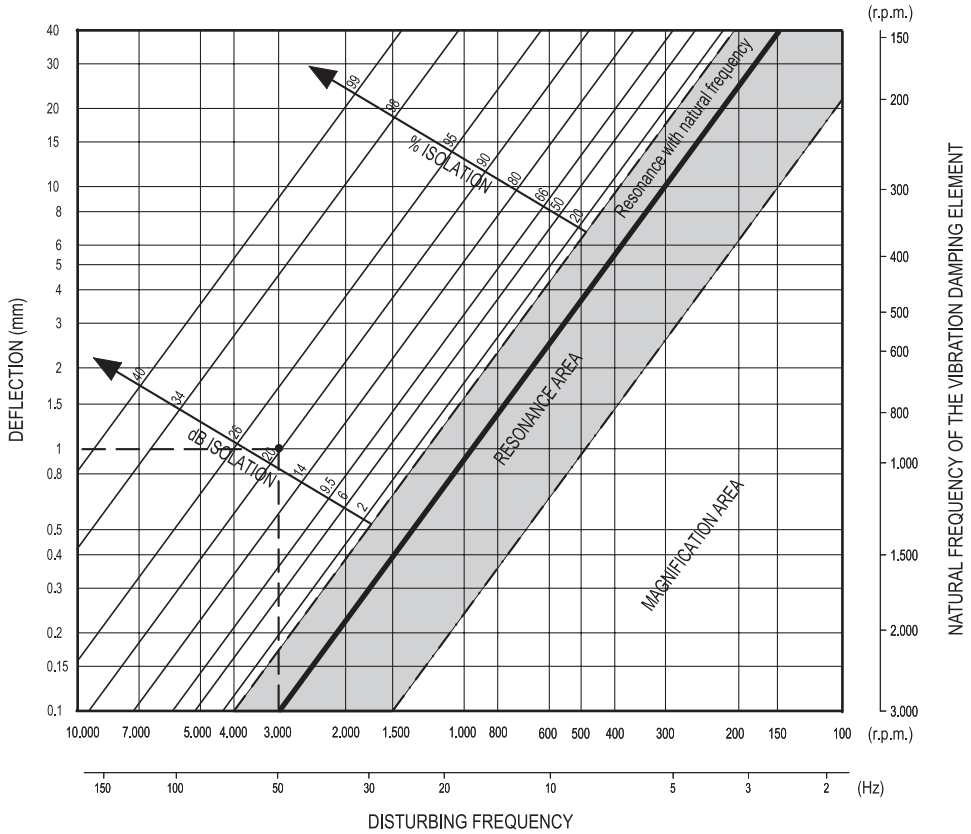


Diagram for checking the isolation degree of the vibration-damping element



Graphs (DVA.6 - DVA.7)