DHF

Door & Hardware Federation

Best practice guide for the methods of restraining roller shutter door barrels

This guide covers the design characteristics which should be considered when supplying roller shutter door barrels, in accordance with current European Standards.
It has been produced by the DHF's Industrial Door Group.

The Door and Hardware Federation

The Door and Hardware Federation represents the interests of manufacturers and installers of industrial, commercial, pedestrian and garage doors as well as manufacturers of locks and building hardware. It provides professionals in all sectors of the building industry with a single source for technical expertise. It has the ultimate aim of assuring progress and maintaining standards throughout the industry.

The DHF Industrial Door Group represents suppliers of all types of industrial doors, including rolling shutters, sectional overheads, folding shutters and rapid roll doors. Its aims are to provide information to specifiers and members of current best practice in design, manufacture and installation and to encourage the safe use of industrial doors.

The production of this guide follows a number of serious incidents, including deaths, which occurred when roller shutter door shafts moved relative to the support plates. These have been investigated by the Health & Safety Executive. These incidents have occurred when the door was struck by moving vehicles, internal failure and failure of the support structure. Manufacturers and installers of roller shutter doors should consider what design modifications are required to prevent relative movement between the support plates and barrel shaft. Where existing doors are considered to have insufficient restraint, recommendations to fit devices to prevent relative movement between the end plates and barrel shaft should be considered. This guidance provides suggestions for suitable restraints for new and existing doors.

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Movement of the barrel relative to the brackets can be prevented by the following methods

This list is not exhaustive but represents some of the most common ways of supporting and restraining a rolling shutter/door barrel. The arrangements shown here and any alternative methods of retaining the barrel must comply with the product standard BS EN 13241-1 and have a full risk assessment carried out.

The design should ensure there is no possibility for the retaining pin or screw to become loose and dislodge itself from the shutter. The findings should be documented in the product technical file.

Checking items such as the setscrews or retaining pins should also be included in the maintenance procedures.

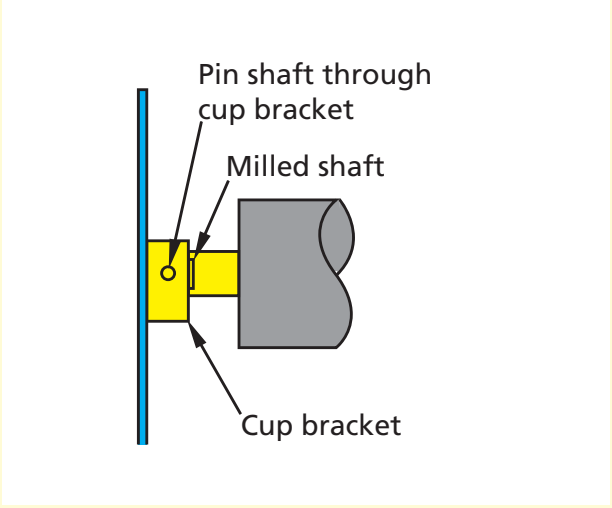
The arrangements are not shown in any order of preference.

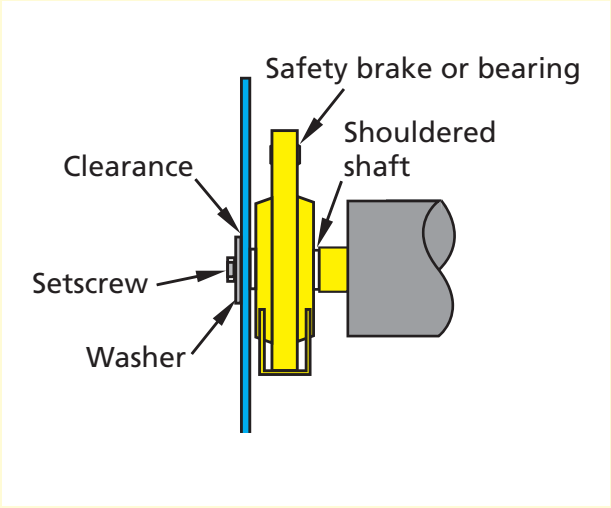
Always ensure the barrel/shaft support endplates/brackets are designed and securely fastened to the structure to prevent any excessive flexing of the endplates/brackets during normal operation. The fixings should be of sufficient quantity and diameter to carry the weight of the shutter/door.

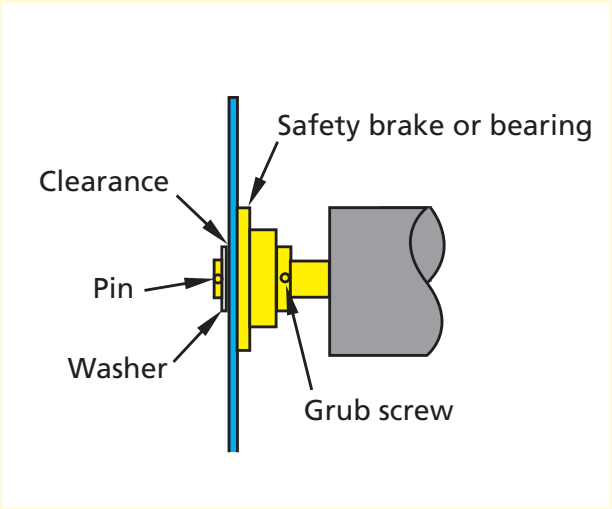
The design of the shutter/door is only as good as the structure to which it is fitted; installers and clients should ensure that the structure is adequate to accept the type and size of fixings being used and the applied loads.
The structure to which the door is to be installed must be designed to prevent any movement/flexing when the door is in its static position or when in motion. When designing the building/opening the client must also take in to account the type and size of vehicles that will pass through the opening and if necessary incorporate secondary steelwork to protect the shutter from impact damage.

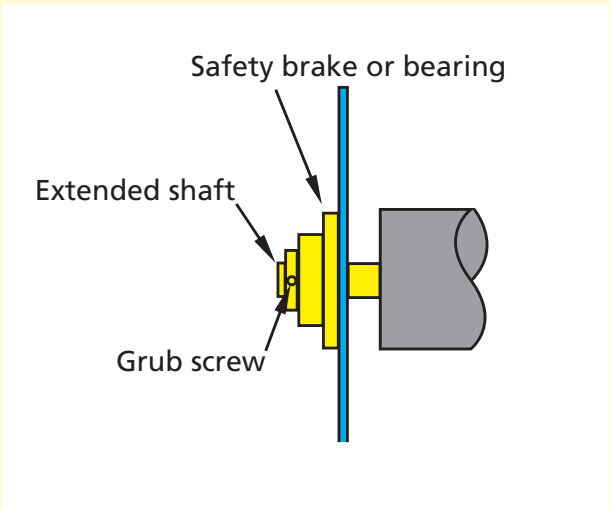
The total weight of the installed shutter/door should be given to the client e.g. shown on the drawing that is sent for the customer's approval or information.

Non drive ends

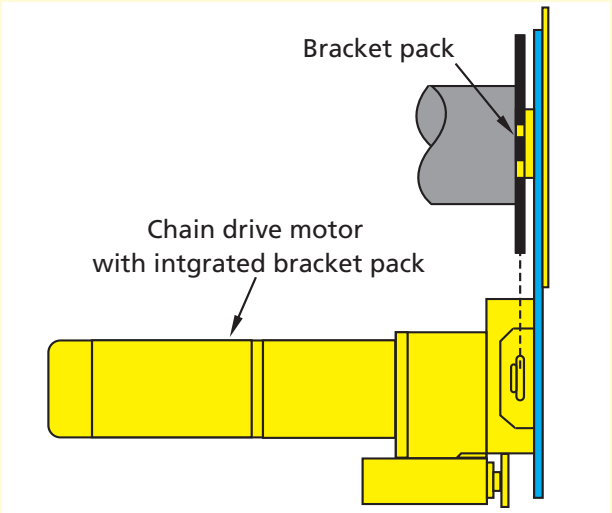




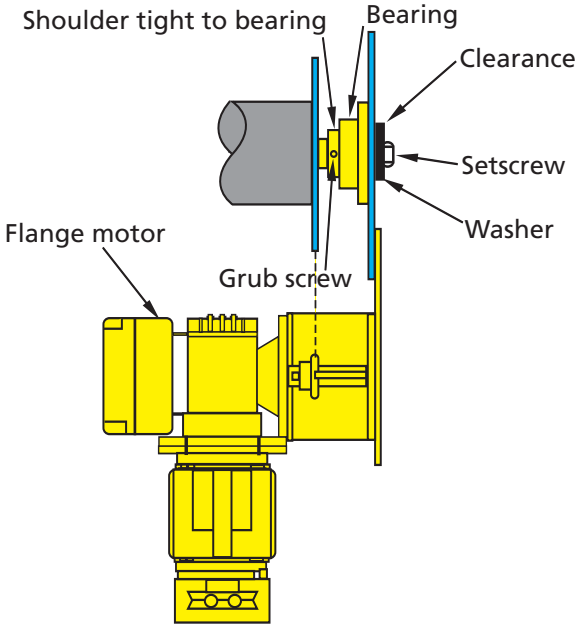


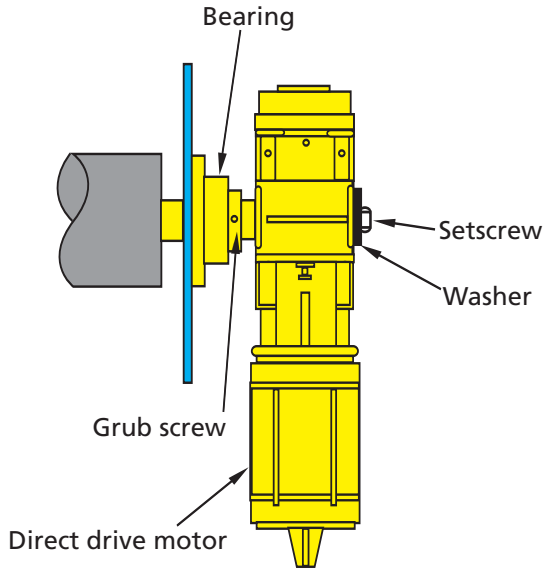


Drive ends



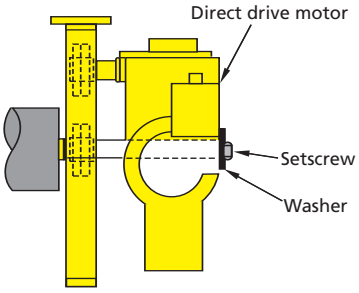
Bracket pack/chain drive arrangement



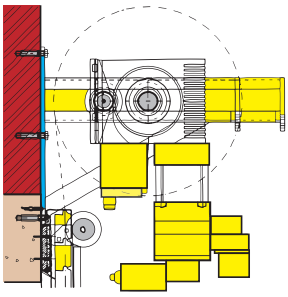


Setscrew and washer to be used to retain the motor if no motor mounting bracket is supplied. Direct drive motors restrain the barrel at the drive end and should incorporate a safety brake

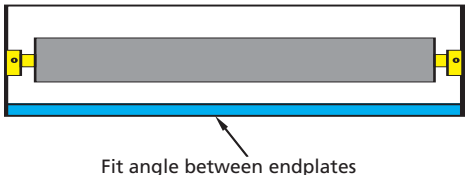
Plan

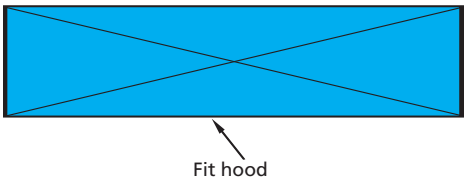


Section



In this situation the barrel is supported and retained by two rollers.
The rollers are captured within the channel bracket preventing lateral and vertical movement





Two ways to restrain the roller barrel where access to the barrel/shafts is restricted