

PART 2.3

2.3.1.1 Hinges and hinge recesses

2.3.2.1 Locks

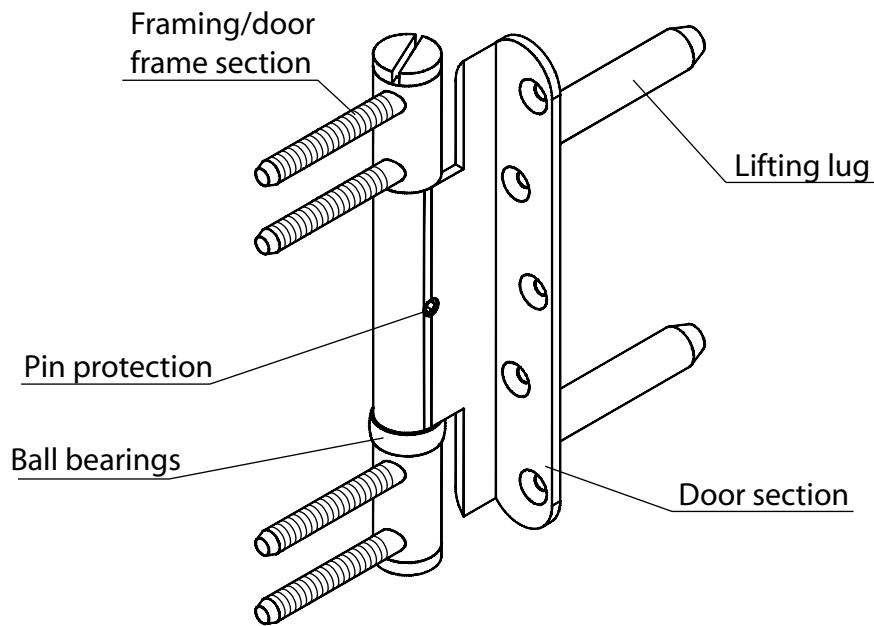
2.3.3.1 Handles

2.3.4.1 Door closers

2.3.5.1 Door openers

2.3.6.1 Floor seals

technical



Requirements and general information

The correct hinge systems or types of hinge are vital if the door is guaranteed to function trouble-free in the long term. When choosing a hinge, the strain is often equated to the weight of the door. However, various factors can mean that the strain on the hinges is many times higher.

To avoid later damage, the following criteria must be considered when choosing hinges:

- Place of application (eg residential building, public building, administration, barracks, school, kindergarten, etc.)
- Construction and type of material used for the door
- Frequency of opening
- Size of door
- Weight of door
- Arrangement of hinges
- Door stop
- Door closer

After all these criteria have been taken into account, a little extra should also be added as a reserve.

We use hinges made by all the well-known manufacturers (SIMONS, Vieler, WENÜ, ANUBA, SFS, HEWI, etc.). The individual stress values vary between 35 kg and 200 kg for the various types of hinge. Please feel free to consult our trained personnel for assistance with selecting the best hinges for your purposes.

For an overview of the most important hinges and hinge recesses please see the section "Dimensional drawings".

Please consult the HUGA price list or the product description in Part I of this manual for the standard hinges fitted to HUGA doors and frames.

Please note:

Fire doors, smokeproof doors, sound insulated doors and multi-functional elements are subject to testing, which includes their hinges. Therefore not all hinges are available for these types of door (see HUGA price list).

Hinge surfaces

According to the hinges selected, the following surfaces are available:

- nickel-coated
- matt nickel-coated
- black nickel-coated
- chrome
- polished chrome
- brushed chrome
- brass-coated
- galvanised
- gunmetal finish
- gold-coated, polished
- tin-plated
- coated in coloured synthetic
- stainless steel
- bi-finish

Types and terminology

Hinge reference line (HRL)

The hinge reference line (HRL) per DIN 18268 is the designated line of a door hinge, situated at a pre-determined distance from the upper edge of the door rebate or the reference edge of the frame rebate.

The HRL is independent of the type of hinge and hinge manufacturer. As it always takes at least two door hinges to fasten a door leaf to the frame, there is an upper HRL (HRL1) and a lower HRL (HRL2).

HRL1 is always 241 mm from the frame rebate, or 237 mm measured from the top edge door rebate. HRL2 depends on the height of the door leaf and describes the space between HRL1 and HRL2.

Predetermining the hinge reference line in this way guarantees the optimum link-up between door, frame and hinge.

The curved, arched and oval-arched elements are the exception. In these cases the HRL per DIN 18268 cannot usually be implemented for technical reasons.

The hinge reference line can be standard within a hinge product group, such as the VX range by SIMONS. Here the HRL is always in the middle of the hinge. But it can also differ within a hinge product group, such as the V, VN or VS ranges

Door leaf sections – Framing sections

Door sections (for the door leaf) and framing sections (for the frame) always combine to form a hinge combination. It is important here to differentiate between timber and steel frames and between flush and rebated doors.

Third hinge

The use of a 3rd hinge (not in the middle, but 250–350 mm below the top hinge) can theoretically raise the stress value by up to 30%. However, in practice it is scarcely possible to divide the stress uniformly between all 3 hinges. We therefore recommend a set of 2 hinges with a higher value.

Designer hinges

A large number of designer hinges with differing shapes of tip are available. These hinges add the perfect finishing touch to the door. HUGA fits chrome, not polished, designer hinges as a standard on all “exclusive” veneered doors and frames – ie with rounded or cornice edges.

Maintenance-free variant hinges



Maintenance-free hinges (additional WF) need no initial lubrication and no maintenance. All standard doors and moulded frames by HUGA are fitted with maintenance-free hinges as a standard (diagram V 3400 WF).

Lifting lugs

Lifting lugs can be used as an optional extra with commercial hinges (VS, VN, VX system) and serve to stabilise the hinge flaps in the door leaf.





3-D hinges

3-dimensional hinges allow the door to be subsequently positioned in the frame in whichever direction desired. These hinges are therefore especially to be recommended for flush doors.

(diagram VX 7303 3-D recess element)

Hinge recesses

The correct hinge recess (recess, protective strip) always depends on the hinge selected for the type of door or frame. HUGA moulded frames are equipped as a standard with an extremely stable, custom-made synthetic hinge recess. Even our standard frames comply with the stress rating "M". It is no problem to upgrade to stress rating "S" before installation. Special conversion kits are available.

Mortar-tight protective strips are always used on steel frames.

Heavy metal recess elements are used for commercial purposes. For instance, for VS and VN requirements the VS 4600 hinge recess, and for the VX range only a VX recess element will be used.



Adjustment of the door leaf (FV)

Certain types of hinge are available in the FV version. The FV allows a lateral adjustment of the door leaf by approx. +/- 2.5mm

(diagram V 0037 WF FV)



Standard hinge recess of high quality synthetic



FD hinges (door seal)

Hinges specially designed for rebate seals (door seal) are available in the VN and VX ranges – additional "FD". Rebate seals are used with sound-proof doors.



Pin protection

All hinges in the VS, VN and VX ranges can be provided with extra pin protection if desired. The grooved pin of the hinge is protected by a locking screw (headless screw) against being knocked out.



VS 4600 hinge recess



V 8600 protective back strip for steel frames.



Stress values

The following tables show a selection of popular hinges with their relevant stress values (source: Simonswerk Company). These are for doors up to a maximum size of 1985 x 985 mm and using 2 hinges with normal HRL. Please note that the hinge stress can in practice exceed the actual door weight due to the above-mentioned factors.

V-range (Variant)

Variant hinges are most often used in residential areas and offer many different combinations. Variant hinges are available in 2-part and 3-part versions.

	V-range	rebated/flush	35 kg	40 kg	50 kg	60 kg	70 kg	80 kg
timber frame	V 5150 (rising hinges)	rebated	●					
	V 5135 (rising hinges)	rebated			●			
	V 3420 WF (2-part)	rebated		●				
	V 3430 WF (2-part)	rebated				●		
	V 3480 WF (2-part)	rebated			●			
	V 4426 WF (3-part)	rebated					●	
	V 4437 WF (3-part)	rebated						●
	V 4487 WF (3-part)	rebated					●	
V 7888	flush					●		
steel frame	V 8120 WF (2-part)	rebated		●				
	V 8130 WF (2-part)	rebated				●		
	V 8026 WF (3-part)	rebated					●	
	V 8037 WF (3-part)	rebated						●
	V 8087 WF (3-part)	rebated					●	

VS range (commercial hinges with ball-bearings)

HUGA often uses VS hinges on commercial frames for elements subject to approval such as smokeproof and fireproof elements. These reliable, maintenance-free hinges can take a lot of stress.

Note: Fire doors, smokeproof doors and soundproof doors are subject to system testing, which includes the hinges. Therefore only certain hinges are available for this purpose (see HUGA price list).

	VS-range	rebated/flush	120 kg	150 kg
timber frame	VS 3939	rebated		●
	VS 3839	rebated		●
	VS 3938 S (Safety plug)	rebated		●
	VS 3739	rebated		●
	VS 3739 S (Safety plug)	rebated		●
	VS 3949	rebated	●	
steel frame	VS 3739	rebated		●
	VS 3739 S (Safety plug)	rebated		●
	VS 7939	rebated		●
	VS 7939 S (Safety plug)	rebated		●
	VS 8939	rebated		●
	VS 7749	rebated		●
VS 8949	rebated			●



VN range (commercial hinges with plain bearing)

HUGA often uses VN hinges on commercial frames for elements subject to approval such as smokeproof and fireproof elements. These maintenance-free hinges are available in different sizes from 100 mm to 160 mm (see table).

Note: Fire doors, smokeproof doors and soundproof doors are subject to system testing, which includes the hinges. Therefore only certain hinges are available for this purpose (see HUGA price list).

V-range	FD* optional	size	rebated/flush	80 kg	100 kg	120 kg	150 kg
VN 1939	●	160	rebated				●
VN 3838	●	160	rebated				●
VN 3938	●	160	rebated				●
VN 2828		160	rebated			●	●
VN 5959		160	rebated			●	
VN 1939		120	rebated			●	
VN 2828		120	rebated		●		
VN 5959		120	rebated		●		
VN 1939	●	100	rebated		●		
VN 3839	●	100	rebated		●		
VN 3939	●	100	rebated		●		
VN 4739	●	100	rebated		●		
VN 2828		100	rebated	●			
VN 2929		160	flush			●	
VN 3848		160	flush			●	
VN 3948		160	flush			●	
VN 2929		120	flush		●		
VN 2929		100	flush	●			
VN 3849		100	flush	●			
VN 3949		100	flush	●			
VN 7939		160	rebated				●
VN 8938		160	rebated				●
VN 9938		160	rebated				●
VN 3738		160	rebated				●
VN 7728		160	rebated			●	
VN 7859		160	rebated			●	
VN 7939		160	rebated			●	
VN 7728		120	rebated		●		
VN 7859		120	rebated		●		
VN 7938		120	rebated		●		
VN 8939		100	rebated		●		
VN 9939		100	rebated		●		
VN 9948		160	flush				
VN 8948		160	flush				
VN 7729		160	flush				
VN 3748		160	flush				
VN 7729		120	flush				
VN 7748		100	flush				
VN 8849		100	flush				
VN 9949		100	flush				

* FD = Version for rebate seal (door seal) also available.



VX range (commercial hinges with plain bearing for 3D recess elements)

VX hinges are being used more and more frequently in the commercial area today. The great advantage of this type of hinge is the high stress values and above all the option of being subsequently adjusted in whichever direction desired

(3D recess elements). The hinges are suitable for both timber and steel frames. Special hinge recesses are available for timber frames and for steel frames.

V-range	FD*optimal	size	rebated/flush	80 kg	100 kg	120 kg	150 kg	170 kg	200 kg
V 7728		100	rebated	●					
V 7939	●	120	rebated		●				
V 7728		120	rebated		●				
V 7859		120	rebated		●				
V 7939		120	rebated			●			
V 7728		160	rebated			●			
V 7859		160	rebated			●			
V 7939	●	160	rebated				●		
V 7939-4	●	160	rebated						●
V 7729		100	rebated	●					
V 7729		120	rebated		●				
V 7729		160	rebated			●			
V 7729-4		160	rebated					●	

Note: Fire doors, smokeproof doors and soundproof doors are subject to system testing, which includes the hinges. Therefore only certain hinges are available for this purpose (see HUGA price list).

* FD = Version for rebate seal (door seal) also available.

