

# HALFEN INDUSTRIAL TECHNOLOGY

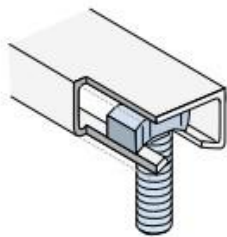
## HALFEN Bolts

### HALFEN Bolts HS, HZS and HSR

#### Type HS

##### HALFEN Bolts

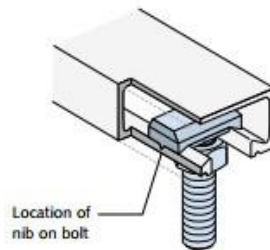
- suitable for all channels
- load bearing capacity in two directions
- marked at shank end with one notch



#### Type HSR

##### HALFEN Bolts with nibs

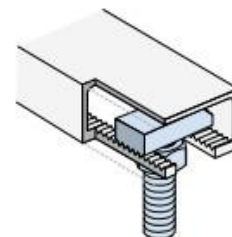
- suitable for use in hot-rolled, standard steel channels from the heavy duty system
- nibbed; therefore positive-locking, load bearing in all directions
- the T-bolts prevent turning under vibration
- marked at shank end with two notches




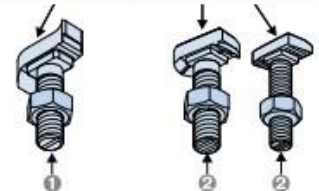
#### Type HZS

##### Serrated HALFEN Bolts

- for serrated framing channels HZM and HZL
- serration also provides positive load bearing transmission in longitudinal channel direction; risk of slippage is eliminated
- marked at shank end with two notches




 Bolt identification on the bolt head



1


**HS All Types**

HZS 41/22 


HZS 41/41

2

**HSR All Types**


HZS 38/23 

HZS 29/20

 Notches on the shank tip:

1


**HS All Types**

HZS 41/22 



HZS 41/41

2








**HSR All Types**

HZS 38/23 

HZS 29/20

  → Manufacturer  
(for individual dimensions)

→ Strength class resp. property class

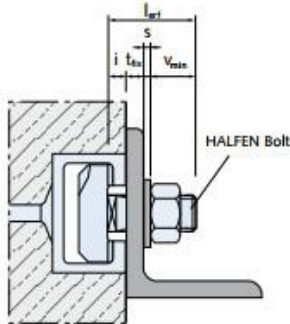
	Strength class 4.6 galvanized or hot-dip galvanized		Property class A4 - 50 stainless steel
			
	Strength class 8.8 galvanized or hot-dip galvanized		Property class A4 - 70 stainless steel
			

Marking at the shank end of the HALFEN Bolts: After assembly check the correct orientation of the notches on the shank end of the bolts. The slots must be at right angles to the channel length.

## HALFEN INDUSTRIAL TECHNOLOGY

### HALFEN Bolts and Locking Plates

#### Calculating the bolt length $l_{req}$ for HALFEN Bolts (steel construction)



$$l_{req} = t_{fix} + i + s + V_{min}$$

- $l_{req}$  = required bolt length
- $t_{fix}$  = thickness: attached component
- $i$  = channel lip thickness
- $s$  = washer thickness → see page 56

- $V_{min} = m + u$
- $m$  = nut height EN ISO 4032
- $u$  = bolt protrusion approx. 5 mm according to DIN 78 (bolts larger M20 require min. 7 mm)

Dimensions  $V_{min}$

Bolt diameter	$V_{min} = m + u$ [mm]
M6	11.0
M8	12.5
M10	14.5
M12	17.0
M16	20.5
M20	26.0
M24	29.0
M27	31.5
M30	33.5

Thickness channel lip  $i$

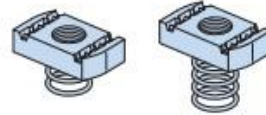
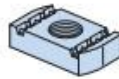
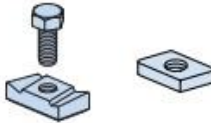
Profile	28/15	29/20	38/17	36/36	38/23	40/22	40/25	41/22	41/27	422	486	49/30	50/30	50/40	52/34	53/34	55/42	64/44	72/48
$i$ [mm]	2.25	5.0	3.0	2.5	5.5	6.0	5.6	7.0	7.0	6.0	6.0	7.39	7.85	7.0	10.5	7.5	12.9	10.0	15.5

#### Locking plates GWP

Locking plates (channel nuts) allow any metric bolt or threaded rod to be used.

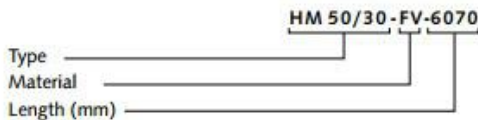
Locking plates with "grip" (see medium duty framing system, page 44). The "serration" grips the channel lips.

Locking plates with spring are used in particular for securing plates or panels (see medium duty framing system, page 44).

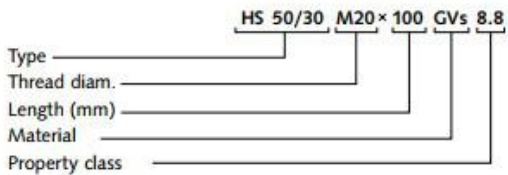


#### Ordering examples

##### Order example - framing channels



##### Order example - HALFEN Bolts



or use the 12-digit order no. e.g. 0280.200-00003

or use the 12-digit order no. e.g. 0350.090-00081  
Order numbers for HALFEN Bolts can be found in the HALFEN Pricelist.