# **Pins**

# EH 22690.



# **Product Description**

To be used as seats, stops and thrust pads.

#### **Material**

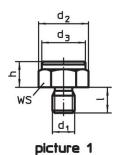
• Steel, case-hardened, blackened

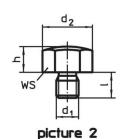
#### More information

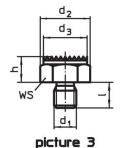
#### **Further products**

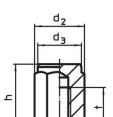
- · Seating Pins, ribbed or pointed
- Pins, with plastic bearing surface

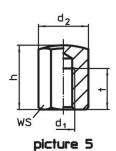
# **Drawing**

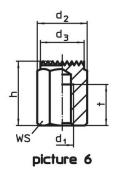












## **Order information**

picture 4

Dimensions							Tightening	I	Art. No.	
h	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	ı	t		torque	_		
		f1				f1	max.	f-3		
		[mm]				[mm]	[Nm]	[g]		
with male thread, bearing surface plain – picture 1										
10±0.01	М 8	19.4	17	10	_	17	18	21	22690.0021	
10 ±0.01	M10	21.9	19	12	_	19	32	28	22690.0031	
15±0.01	M10	21.9	19	12	-	19	32	40	22690.0032	
10 ±0.01	M12	25.2	22	14	_	22	60	40	22690.0001	
15±0.01	M12	25.2	22	14	_	22	60	55	22690.0002	
15±0.01	M16	33.0	30	19	_	30	140	110	22690.0042	
20 ±0.01	M16	33.0	30	19	_	30	140	140	22690.0043	
20 ±0.01	M20	40.0	36	24	_	36	290	214	22690.0052	
25±0.01	M20	40.0	36	24	_	36	290	257	22690.0053	
20 ±0.01	M24	46.0	41	29	_	41	498	300	22690.0062	
25±0.01	M24	46.0	41	29	_	41	498	356	22690.0063	
30 ±0.01	M24	46.0	41	29	_	41	498	412	22690.0064	

<sup>1)</sup> The tightening torque of bolts with female thread is for threaded pins, quality 8. The bolt has to be tightened over the total thread length.



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		Dimensions				ws	Tightening	I	Art. No.
h	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	1	t		torque	•	7 th th 110.
						_	max.		
with male through beaution confee		[mm]				[mm]	[Nm]	[9]	
with male thread, bearing surfac	•	•		40		47	40	20	22690.0121
10 ±0.10 10 ±0.10	M 8 M10	19.4 21.9	_	10 12	_	17 19	18 32	20	22690.0121
15 ±0.10	M10	21.9	_	12	_	19	32	40	22690.0132
10 ±0.10	M12	25.2	_	14	_	22	60	37	22690.0101
15±0.10	M12	25.2	_	14	_	22	60	53	22690.0102
15±0.10	M16	33.0	_	19	_	30	140	105	22690.0142
20±0.10	M16	33.0	_	19	_	30	140	135	22690.0143
20 ±0.10	M20	40.0	_	24	_	36	290	206	22690.0152
25±0.10	M20	40.0	-	24	_	36	290	249	22690.0153
20±0.10	M24	46.0	_	29	_	41	498	285	22690.0162
25±0.10	M24	46.0	_	29	_	41	498	342	22690.0163
30 ±0.10	M24	46.0	-	29	_	41	498	398	22690.0164
with male thread, bearing surface	ce ribbed – p	icture 3							
10 ±0.10	M 8	19.4	17	10	-	17	18	20	22690.0221
10 ±0.10	M10	21.9	19	12	-	19	32	27	22690.0231
15±0.10	M10	21.9	19	12	_	19	32	39	22690.0232
10±0.10	M12	25.2	22	14	_	22	60	38	22690.0201
15±0.10	M12	25.2	22	14	_	22	60	54	22690.0202
15±0.10	M16	33.0	30	19	_	30	140	106	22690.0242
20 ±0.10	M16	33.0	30	19	-	30	140	136	22690.0243
20 ±0.10	M20	40.0	36	24	_	36	290	200	22690.0252 22690.0253
25±0.10 20±0.10	M20 M24	40.0 46.0	36 41	24	_	36 41	290 498	243	22690.0262
25±0.10	M24	46.0	41	29	_	41	498	338	22690.0263
30±0.10	M24	46.0	41	29	_	41	498	395	22690.0264
with female thread, bearing surf				20			100	000	
15±0.01	M 8	19.4	17	15	6	17	25 <sup>1)</sup>	25	22690.0321
		-			12	17	25 <sup>1)</sup>	42	22690.0323
∠5 <b>I</b> U.U1	M 8	19.4	17	25					22090.0323
25±0.01 20±0.01	M 8 M10	19.4 21.9	17 19	25 20	10	19	46 <sup>1)</sup>	40	22690.0323
						19 19	46 <sup>1)</sup>		
20 ±0.01 30 ±0.01	M10 M10	21.9 21.9	19 19	20	10 15		46 <sup>1)</sup>	40 61	22690.0333
20±0.01	M10	21.9	19	20	10	19	46 <sup>1)</sup>	40	22690.0333 22690.0335
20±0.01 30±0.01 40±0.01	M10 M10 M10	21.9 21.9 21.9	19 19 19	20 30 40	10 15 15	19 19	46 <sup>1)</sup>	40 61 85	22690.0333 22690.0335 22690.0337
20 ±0.01 30 ±0.01 40 ±0.01 20 ±0.01	M10 M10 M10 M12	21.9 21.9 21.9 25.2	19 19 19 22	20 30 40 20	10 15 15 10	19 19 22	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup>	40 61 85 52	22690.0333 22690.0335 22690.0337 22690.0301
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01	M10 M10 M10 M12 M12	21.9 21.9 21.9 25.2 25.2	19 19 19 22 22	20 30 40 20 25	10 15 15 10 15	19 19 22 22	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup>	40 61 85 52 65	22690.0333 22690.0335 22690.0337 22690.0301 22690.0302
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01	M10 M10 M10 M12 M12 M12	21.9 21.9 21.9 25.2 25.2 25.2	19 19 19 22 22 22	20 30 40 20 25 30	10 15 15 10 15 18	19 19 22 22 22	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup>	40 61 85 52 65 79	22690.0333 22690.0335 22690.0337 22690.0301 22690.0302 22690.0303
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01	M10 M10 M10 M12 M12 M12 M12	21.9 21.9 21.9 25.2 25.2 25.2 25.2	19 19 19 22 22 22 22 22	20 30 40 20 25 30 40	10 15 15 10 15 18 18	19 19 22 22 22 22	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup>	40 61 85 52 65 79 111	22690.0333 22690.0335 22690.0301 22690.0301 22690.0302 22690.0303 22690.0304
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M12	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 25.2	19 19 19 22 22 22 22 22 22	20 30 40 20 25 30 40 50	10 15 15 10 15 18 18 18	19 19 22 22 22 22 22 22	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup>	40 61 85 52 65 79 111 142	22690.0333 22690.0335 22690.0307 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M12 M16	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 25.2 33.0	19 19 19 22 22 22 22 22 22 22 30	20 30 40 20 25 30 40 50	10 15 15 10 15 18 18 18 20	19 19 22 22 22 22 22 22 30	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup>	40 61 85 52 65 79 111 142	22690.0333 22690.0335 22690.0307 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 50±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0	19 19 19 22 22 22 22 22 22 30 30	20 30 40 20 25 30 40 50 30	10 15 15 10 15 18 18 18 20 24	19 19 22 22 22 22 22 22 30 30	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343 22690.0345
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16 M20	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0	19 19 19 22 22 22 22 22 22 30 30 36	20 30 40 20 25 30 40 50 30 50 40	10 15 15 10 15 18 18 18 20 24 26	19 19 22 22 22 22 22 22 30 30 36	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0345 22690.0345
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 50±0.01 40±0.01 60±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16 M20 M20	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0	19 19 19 22 22 22 22 22 22 30 30 36 36	20 30 40 20 25 30 40 50 30 50 40 60	10 15 15 10 15 18 18 18 20 24 26 38	19 19 22 22 22 22 22 30 30 36 36	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 407 <sup>1)</sup> 407 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343 22690.0345 22690.0353 22690.0353
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 40±0.01 40±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16 M20 M20 M24 M24	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0	19 19 19 22 22 22 22 22 22 30 30 36 36 41	20 30 40 20 25 30 40 50 30 50 40 60 40	10 15 15 10 15 18 18 18 20 24 26 38 26	19 19 22 22 22 22 22 22 30 30 36 36 41	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343 22690.0345 22690.0355 22690.0355 22690.0363
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 60±0.01 40±0.01 60±0.01	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16 M20 M20 M24 M24	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0	19 19 19 22 22 22 22 22 22 30 30 36 36 41	20 30 40 20 25 30 40 50 30 50 40 60 40	10 15 15 10 15 18 18 18 20 24 26 38 26	19 19 22 22 22 22 22 22 30 30 36 36 41	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343 22690.0345 22690.0355 22690.0355 22690.0363
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 40±0.01 60±0.01 with female thread, bearing surf	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16 M20 M20 M24 M24 Face spherica	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 46.0	19 19 19 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60	10 15 15 10 15 18 18 18 20 24 26 38 26 38	19 19 22 22 22 22 22 22 30 30 36 36 41 41	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 407 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0305 22690.0305 22690.0345 22690.0353 22690.0355 22690.0365
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 60±0.01 40±0.01 60±0.01 with female thread, bearing surf	M10 M10 M10 M12 M12 M12 M12 M12 M16 M20 M20 M24 M24 M24 M8	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 41 - picture 5	19 19 19 22 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60	10 15 15 10 15 18 18 18 20 24 26 38 26 38	19 19 22 22 22 22 22 30 30 36 36 41 41	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup> 698 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0305 22690.0305 22690.0345 22690.0355 22690.0355 22690.0365 22690.0365
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 60±0.01 40±0.01 60±0.01 with female thread, bearing surf	M10 M10 M10 M12 M12 M12 M12 M12 M16 M20 M20 M24 M24 M24 face spherica M 8 M 8	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 41 - picture 5	19 19 19 22 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60 40 50	10 15 15 10 15 18 18 18 20 24 26 38 26 38	19 19 22 22 22 22 22 23 30 30 36 36 41 41 17	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup> 698 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343 22690.0345 22690.0355 22690.0365 22690.0365 22690.0365
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 60±0.01 40±0.01 with female thread, bearing surf 15±0.10 20±0.10	M10 M10 M10 M12 M12 M12 M12 M12 M16 M20 M20 M24 M24 M24 Face spherica M 8 M 8	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 41 - picture 5 19.4 19.4 21.9	19 19 19 22 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60 40 50 25 20	10 15 15 10 15 18 18 18 18 20 24 26 38 26 38 6 12 10	19 19 22 22 22 22 22 30 30 36 36 41 41 17 17 19	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 40 <sup>1)</sup> 206 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup> 698 <sup>1)</sup> 25 <sup>1)</sup> 25 <sup>1)</sup> 46 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0305 22690.0305 22690.0345 22690.0353 22690.0355 22690.0365 22690.0365
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 60±0.01 40±0.01 with female thread, bearing surf 15±0.10 20±0.10 30±0.10	M10 M10 M10 M12 M12 M12 M12 M12 M16 M20 M20 M24 M24 M24 Face spherica M 8 M 8 M10 M10	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 41 - picture 5 19.4 19.4 21.9 21.9	19 19 19 22 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60 40 60 25 20 30 30 30 40 30 40 50 30 40 50 30 40 60 60 60 60 60 60 60 60 60 6	10 15 15 10 15 18 18 18 18 20 24 26 38 26 38 6 12 10 15	19 19 22 22 22 22 22 30 30 36 36 41 41 17 17 19	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 407 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup> 698 <sup>1)</sup> 25 <sup>1)</sup> 46 <sup>1)</sup> 46 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530 24 41 38 60	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0305 22690.0305 22690.0343 22690.0355 22690.0355 22690.0365 22690.0365 22690.0365
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 30±0.01 40±0.01 60±0.01 40±0.01 60±0.01 with female thread, bearing surf 15±0.10 20±0.10 30±0.10 40±0.10	M10 M10 M10 M12 M12 M12 M12 M12 M16 M20 M20 M24 M24 M24 M24 M28 M8 M8 M10 M10 M10	21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 41 - picture 5 19.4 19.4 21.9 21.9 21.9	19 19 19 22 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60 40 60 40 40 60 40 40 40 40 40 40 40 40 40 4	10 15 15 10 15 18 18 18 18 20 24 26 38 26 38 26 12 10 15 15	19 19 22 22 22 22 22 22 30 30 36 36 41 41 17 17 19 19	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 40 <sup>1)</sup> 407 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup> 698 <sup>1)</sup> 25 <sup>1)</sup> 46 <sup>1)</sup> 46 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530 24 41 38 60 84	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0305 22690.0305 22690.0343 22690.0355 22690.0355 22690.0355 22690.0363 22690.0363 22690.0421 22690.0423 22690.0433 22690.0437
20±0.01 30±0.01 40±0.01 20±0.01 25±0.01 30±0.01 40±0.01 50±0.01 50±0.01 40±0.01 60±0.01 40±0.01 60±0.01 with female thread, bearing surf 15±0.10 25±0.10 20±0.10 30±0.10 40±0.10	M10 M10 M10 M12 M12 M12 M12 M12 M16 M16 M20 M24 M24 M24 M24 M24 M24 M20 M10 M10 M10 M10	21.9 21.9 21.9 21.9 25.2 25.2 25.2 25.2 25.2 33.0 33.0 40.0 40.0 46.0 46.0 46.0 31 - picture 5 19.4 21.9 21.9 21.9 25.2	19 19 19 22 22 22 22 22 22 30 30 36 36 41 41	20 30 40 20 25 30 40 50 30 50 40 60 40 60 40 60 25 20 30 40 60 40 60 40 60 40 60 60 60 60 60 60 60 60 60 6	10 15 15 10 15 18 18 18 18 20 24 26 38 26 38 26 12 10 15 15 10	19 19 22 22 22 22 22 22 30 30 36 36 41 41 17 17 19 19 19 19	46 <sup>1)</sup> 46 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 82 <sup>1)</sup> 206 <sup>1)</sup> 206 <sup>1)</sup> 407 <sup>1)</sup> 407 <sup>1)</sup> 698 <sup>1)</sup> 698 <sup>1)</sup> 25 <sup>1)</sup> 26 <sup>1)</sup> 46 <sup>1)</sup> 46 <sup>1)</sup> 46 <sup>1)</sup> 482 <sup>1)</sup>	40 61 85 52 65 79 111 142 141 256 268 415 341 530 24 41 38 60 84 50	22690.0333 22690.0335 22690.0301 22690.0302 22690.0303 22690.0304 22690.0305 22690.0343 22690.0345 22690.0355 22690.0363 22690.0365 22690.0421 22690.0423 22690.0423 22690.0437 22690.0401

<sup>1)</sup> The tightening torque of bolts with female thread is for threaded pins, quality 8. The bolt has to be tightened over the total thread length.

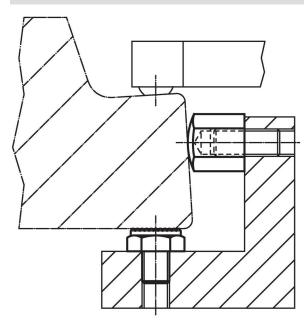


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Dimensions						ws	Tightening	I	Art. No.
h	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	I	t		torque	-	
		[mm]				[mm]	max. [Nm]	[g]	
50 ±0.10	M12	25.2		50	18	22	82 <sup>1)</sup>	141	22690.0405
			_		-		-		22690.0403
30±0.10	M16	33.0	_	30	20	30	2061)	136	
50 ±0.10	M16	33.0	-	50	24	30	2061)	252	22690.0445
40 ±0.10	M20	40.0	-	40	26	36	407 <sup>1)</sup>	261	22690.0453
60 ±0.10	M20	40.0	-	60	38	36	407 <sup>1)</sup>	408	22690.0455
40 ±0.10	M24	46.0	-	40	26	41	698 <sup>1)</sup>	327	22690.0463
60 ±0.10	M24	46.0	-	60	38	41	698 <sup>1)</sup>	514	22690.0465
with female thread, bearing surface ribbed – picture 6									
15±0.10	М 8	19.4	17	15	6	17	25 <sup>1)</sup>	24	22690.0521
25±0.10	М 8	19.4	17	25	12	17	25 <sup>1)</sup>	41	22690.0523
20±0.10	M10	21.9	19	20	10	19	46 <sup>1)</sup>	38	22690.0533
30±0.10	M10	21.9	19	30	15	19	46 <sup>1)</sup>	60	22690.0535
40 ±0.10	M10	21.9	19	40	15	19	46 <sup>1)</sup>	84	22690.0537
20±0.10	M12	25.2	22	20	10	22	82 <sup>1)</sup>	50	22690.0501
25±0.10	M12	25.2	22	25	15	22	82 <sup>1)</sup>	63	22690.0502
30±0.10	M12	25.2	22	30	18	22	82 <sup>1)</sup>	77	22690.0503
40 ±0.10	M12	25.2	22	40	18	22	82 <sup>1)</sup>	109	22690.0504
50 ±0.10	M12	25.2	22	50	18	22	82 <sup>1)</sup>	141	22690.0505
30±0.10	M16	33.0	30	30	20	30	206 <sup>1)</sup>	137	22690.0543
50 ±0.10	M16	33.0	30	50	24	30	206 <sup>1)</sup>	254	22690.0545
40 ±0.10	M20	40.0	36	40	26	36	407 <sup>1)</sup>	254	22690.0553
60 ±0.10	M20	40.0	36	60	38	36	407 <sup>1)</sup>	401	22690.0555
40 ±0.10	M24	46.0	41	40	26	41	698 <sup>1)</sup>	322	22690.0563
60 ±0.10	M24	46.0	41	60	38	41	698 <sup>1)</sup>	408	22690.0565

<sup>1)</sup> The tightening torque of bolts with female thread is for threaded pins, quality 8. The bolt has to be tightened over the total thread length.

# **Application example**



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## Compliance

# RoHS compliant

Contains lead - compliant according to exceptions 6a / 6b / 6c.

#### Contains SVHC substances >0,1% w/w

Contains lead - SVHC list [REACH] as of 27.06.2024.

#### **Contains Proposition 65 substances**



Lead can cause cancer and reproductive harm from exposure https://www.P65Warnings.ca.gov/

#### **Free from Conflict Minerals**

This product does not contain any substances designated as "conflict minerals" such as tantalum, tin, gold or tungsten from the Democratic Republic of Congo or adjacent countries.



Erwin Halder KG

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