

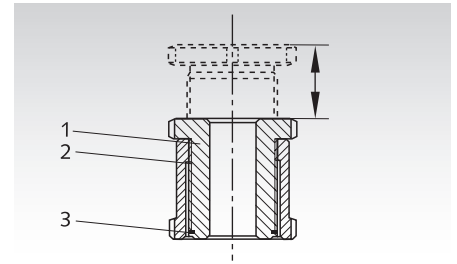
## Precision Levelling Adjusters

The precision levelling adjusters consist of a threaded mounting bolt (1) and a nut base (2). The fine thread design permits a precise adjustment as well as easy readjustment using the wrench spanner DIN 1810 A (page 612).

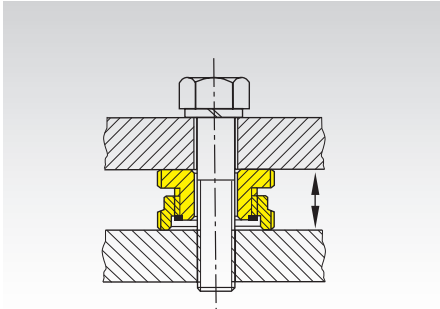
Under static load, the adjusted level is firmly fixed by tightening the mounting bolt. The Levellers with Locking Nut are recommended for dynamic loads or when no bolts are used for the mounting.

The safety screw features (3) serves as an end stop for maximum adjustment.

The use of Precision Adjusters for type MN 686.4/MN 686.7, MN 686.8/MN 686.9 and MN 686.5 facilitates precise adjustment of non-parallel surfaces.

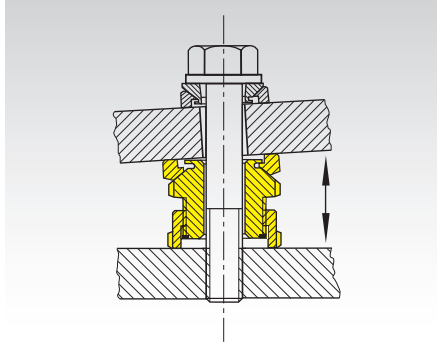


### Precision Adjuster MN 686.3 and MN 686.6 Page 608



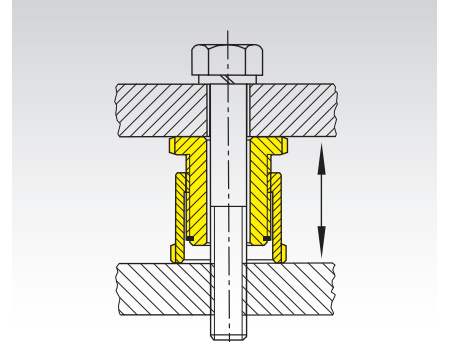
- For parallel surfaces.
- Low overall height with short adjustment travel.
- Type MN 686.3 (without lock nut): From 15mm (plus 4mm adjustment travel) to 48mm (plus 14mm adjustment travel).
- Type MN 686.6 (with lock nut): From 20mm (plus 4mm adjustment travel) to 63mm (plus 14mm adjustment travel).

### Ball Head Precision Adjuster MN 686.4 and MN 686.7 Page 609



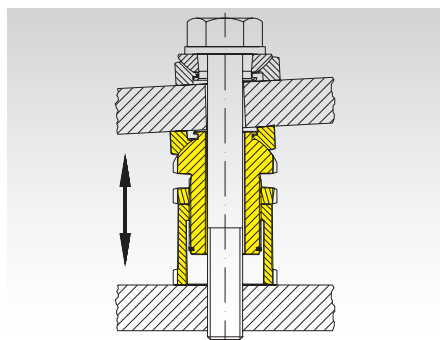
- For non-parallel surfaces up to 4° slope.
- Low overall height with short adjustment travel.
- Type MN 686.4 (without lock nut): From 22mm (plus 4mm adjustment travel) to 72mm (plus 14mm adjustment travel).
- Type MN 686.7 (with lock nut): From 27mm (plus 4mm adjustment travel) to 87mm (plus 14mm adjustment travel).

### Precision Leveller MN 686.1 and MN 686.2 Page 610



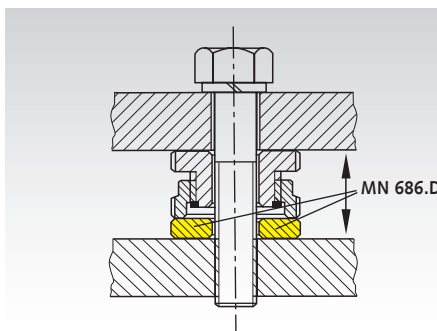
- For parallel surfaces.
- Larger overall height with more adjustment travel.
- Type MN 686.1 (without lock nut): From 28mm (plus 15mm adjustment travel) to 95 mm (plus 55mm adjustment travel).
- Type MN 686.2 (with lock nut): From 33mm (plus 10mm adjustment travel) to 110mm (plus 40mm adjustment travel).

### Ball Head Precision Adjuster MN 686.8 and MN 686.9 P. 611



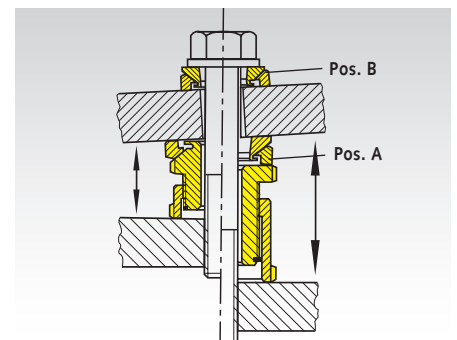
- For non-parallel surfaces up to 4° slope.
- Larger overall height with more adjustment travel.
- Type MN 686.8 (without lock nut): From 35mm (plus 15mm adjustment travel) to 119mm (plus 55mm adjustment travel).
- Type MN 686.9 (with lock nut): From 40mm (plus 10mm adjustment travel) to 134mm (plus 40mm adjustment travel).

### Spacer MN 686.D Page 612



The Spacer MN 686.D is used to bridge gaps between the levelling adjuster and the bearing surface when the adjustment travel  $\Delta h$  is insufficient.

### Ball Shim MN 686.5 Page 612



Like the ball head precision adjusters MN 686.4 the ball shim MN 686.5 (Pos. A) facilitates adjustment of non-parallel surfaces with an angle of inclination of up to 4°. If the angle of inclination  $\alpha > 1^\circ$ , the use of an additional ball shim (Pos. B) is recommended to assure a stable support of the bolt head.

## Notes on Mounting

All models can be assembled with a normal mounting screw, to prevent a change of position. Suitable screw sizes are provided in the dimensions tables. The screw length depends on the customers components. That's why the

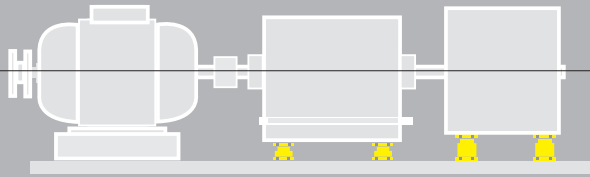
screw is not included. The adjustment thread is greased on all models (with high quality long-life grease), to prevent seizing. This means that loosening / adjustment is possible even after prolonged use.

All precision levelling adjusters have a safety screw to keep them from falling apart.

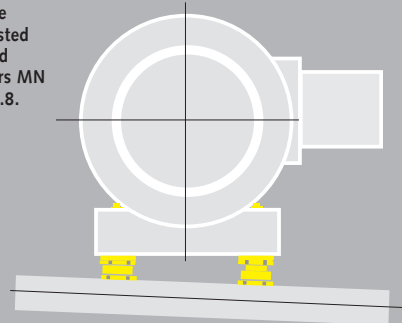
## Precision levelling adjusters

### Examples

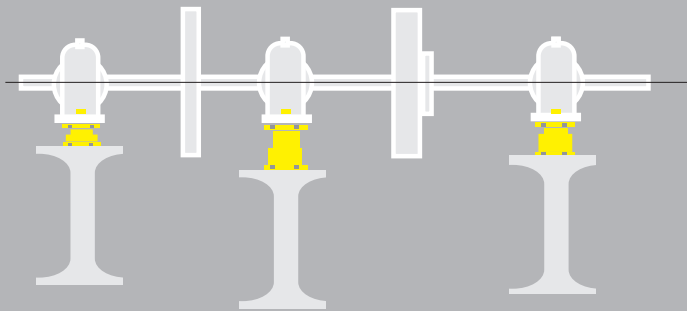
Precise fixation of components at an exact level using the Precision Levelling Adjusters MN 686.3 or MN 686.1



With an incline of up to about 4° the level can be adjusted by using ball head precision adjusters MN 686.4 or MN 686.8.



Level adjustment if there are various substructures.



### Load Table (static)

Type (Size)	Mounting Screw	s t a n d a r d				s t a i n l e s s			
		Torque <sup>1)</sup> kN	Preload <sup>2)</sup> kN	F <sub>add.</sub> <sup>3)</sup> kN	F <sub>tot.</sub> <sup>4)</sup> kN	Torque <sup>1)</sup> kN	Preload <sup>2)</sup> kN	F <sub>add.</sub> <sup>3)</sup> kN	F <sub>tot.</sub> <sup>4)</sup> kN
15-6,6	M6	10,1	9,3	30,7	40	7,5	6,84	20,30	27,1
20-6,6	M6	10,1	9,3	55,7	65	7,5	6,84	36,56	43,4
20-9,0	M8	24,6	17,0	48,0	65	18,2	12,5	30,90	43,4
20-11	M10	48	27,1	37,9	65	36,5	20	23,41	43,4
30-11	M10	48	27,1	92,9	120	36,5	20	64,01	84
30-13,5	M12	84	39,6	80,4	120	62	29	54,82	84
30-17,5	M16	206	74,5	45,5	120	153	55	28,90	84
40-17,5	M16	206	74	136	210	153	55	92,90	148
40-22	M20	415	120	90	210	300	89	59,10	148
40-26	M24	714	173	37	210	515	128	20,30	148
50-22	M20	415	120	210	330	300	89	136	225
50-26	M24	714	173	157	330	515	128	97	225
50-33	M30	1420	277	53	330	1031	204	20,60	225
60-26	M24	714	173	322	495	515	128	195	323
60-33	M30	1420	277	218	495	1031	204	118	323
60-39	M36	2482	394	101	495	1793	285	38	323

<sup>1)</sup> Fastening torque (for screw strength 8.8 for standard versions or A2-70 for stainless version).

<sup>2)</sup> The preload of any mounting screw used (tensile strength 8.8 for standard versions or A2-70 for stainless version).

<sup>3)</sup> F<sub>add.</sub> = max. permissible static load, in addition to the preload of a mounting screw.

<sup>4)</sup> F<sub>tot.</sub> = max. permissible total static load.