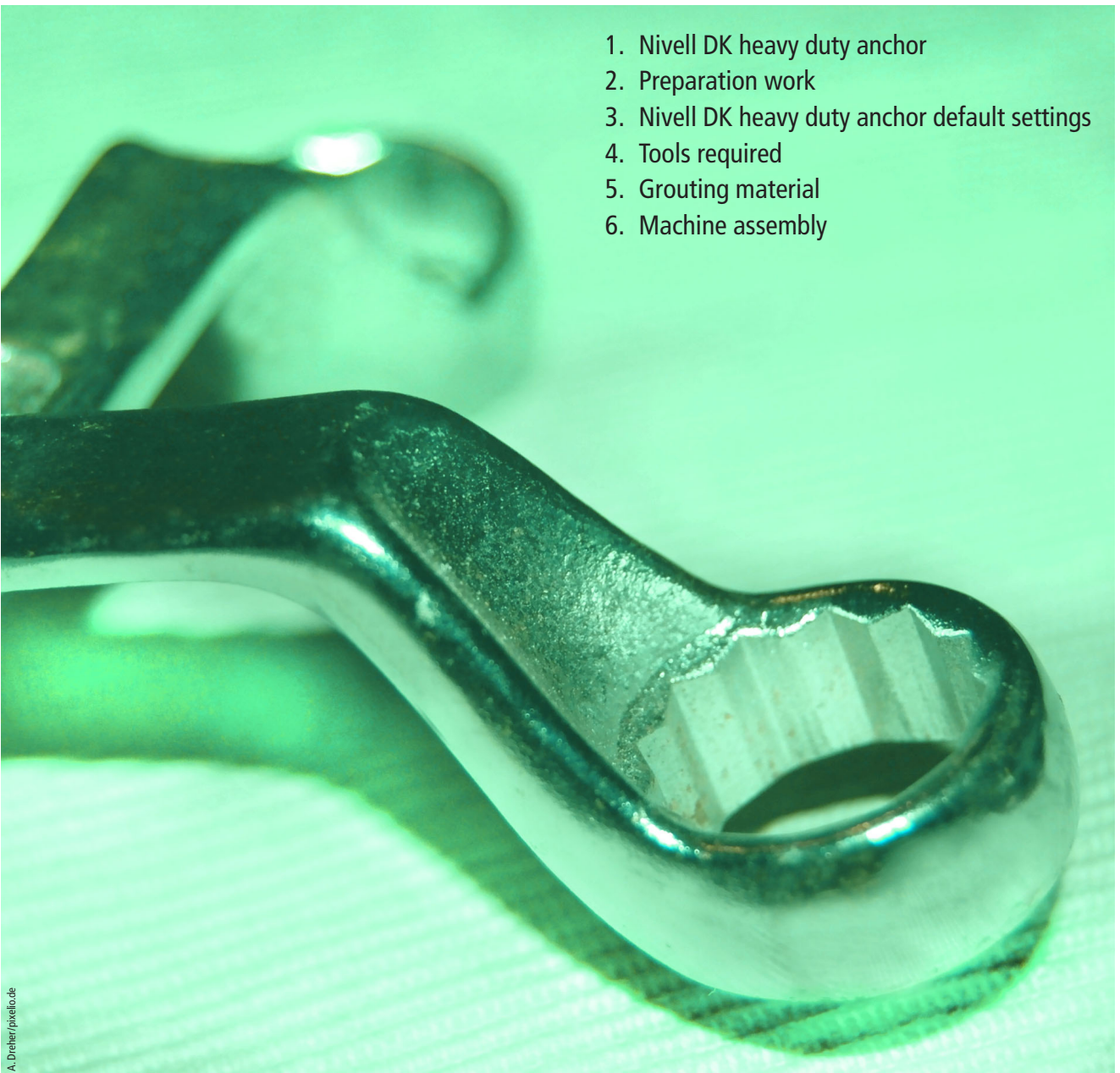


Assembly instructions for setting machines up on a Nivell DK heavy duty anchor for grouting

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1. NIVELL DK HEAVY DUTY ANCHOR

Technical data for dual precision levelling wedge (DK)

		DK-2/10	DK-2	DK-3	DK-4
Maximum adjustment load	kN	120	150	250	400
Fine adjustment range	mm	10	7	7	9
Torque on adjustment screw per 10 kN	Nm	6	4	6	5
Torque on adjustment screw at max. adjustment load	Nm	72	60	150	200
Height adjustment per adjustment screw turn	mm	0,546	0,375	0,444	0,375
Flexibility/rigidity	N/ μ m	5.000	5.000	6.000	7.500
Weight of basic version	kg	6,3	6,3	8	21

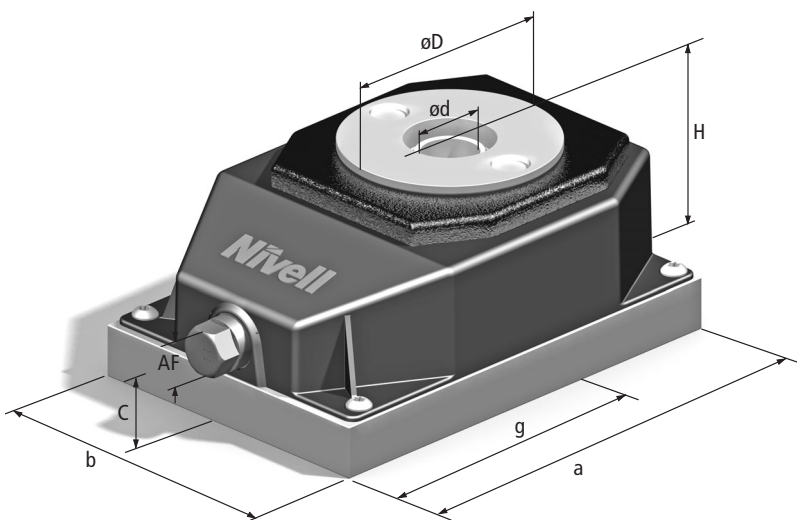
Important notes on load for DK range with anchor rod

		M20	M24	M30	M36
Torque on base anchor nut per kN	Nm	3,4	4	5	6
Preload force with hand-tightened base anchor nut	kN	38	40	50	53
Torque on hand-tightened base anchor nut	Nm	129,2	160	250	318
Torque on base anchor nut at yield point Wellenstein expansion bolt	Nm	275	460	910	1.590
Preload force at Wellenstein expansion bolt yield point	kN	81	115	185	265

Do not consider just the proportional machine load when attempting to adhere to the maximum adjustment load. The total of all loads that occur - such as the proportional machine load, dynamic loads, variable loads, and pre-stressing of the Wellenstein screw (anchor rod) – should not exceed the maximum permitted load for the dual wedge (DK).

Furthermore it should be noted that during the levelling process more weight is normally placed on a point than the proportional machine load amounts to.

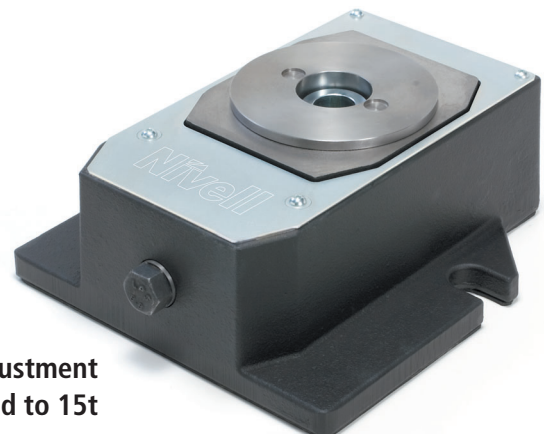
DK precision levelling wedge data	mm	DK-2 & DK-2/10	DK-3	DK-4
Length	a	175	200	260
Width	b	120	160	240
Distance to through-hole centre	g	110	113	150
Unladen height at lowest setting	H	71	87	102
Levelling screw centre height	C	33	31	43
Spherical bearing surface	D	80	80	120
Centre bore diameter	d	$\leq 24,5$	≤ 31	$\leq 36,5$
6-point wrench for adjustment	AF	17	24	24



DK-4 with adjustment load to 40t



DK-3 with adjustment load to 25t



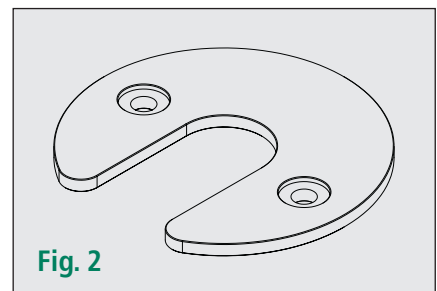
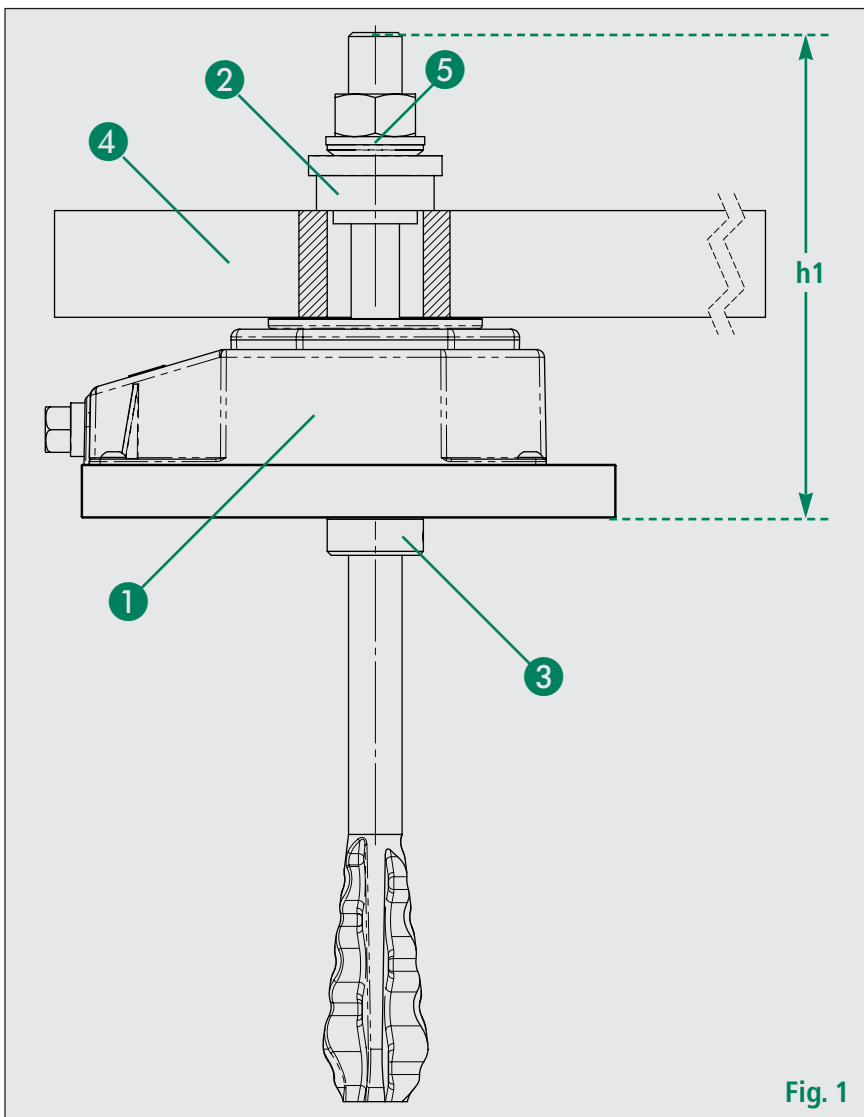
DK-2 with adjustment load to 15t

2. PREPARATION WORK

- In one work step, create a base with recesses. Allow the base to dry out for as long as possible. To minimise shrinkage, you should wait for at least one month before setting the machine up on the base.
- DIN 1045 provides information on the strength of the concrete.
- The base should be free from dust and oil. Clean the anchor holes thoroughly. Remove the remaining formwork and other disposable materials.
- Before pouring in the grout, dampen the anchor holes thoroughly or keep them damp.
- Clean the underside of the machine.
- Prepare the grouting frame (Fig.3, pos. 7).

3. DK HEAVY DUTY ANCHOR DEFAULT SETTINGS

- Set the Nivell DK heavy duty anchor to the central position or leave at the lowest position if using D-4 spacer washers (Fig.2).
- Set the Wellenstein expansion bolts to the height of the machine flange using the adjusting ring (Fig. 1, pos.3). The height h_1 (Fig. 1) is the total of the heights of the DK levelling wedge and its adjustment track (Fig. 1, pos.1) and any D-4 spacer washers (Fig. 2), the centring bush (Fig. 1, pos.2), the machine flange (Fig. 1, pos.4) and the compression fitting (Fig. 1, pos.5 – compensation discs, nuts and U-washers).



4. TOOLS REQUIRED

- Prepare the machine base plan with the position of the anchor holes.
- Required wrenches: AF17 and AF30 for DK-2/M20, AF24 and AF36 for DK-3/M24, and AF24 and AF46 for DK-4/M30.
- AF3 hexagonal wrench for adjusting ring.
- Prepare the centring bush (Fig. 1, pos.2) to centre the Wellenstein screws in the bedding hole.
- DK auxiliary wedges (Fig. 3, pos.6), wooden blocks or other support aids (Fig. 3, pos.6).
- D-4 spacer washers (Fig. 2)

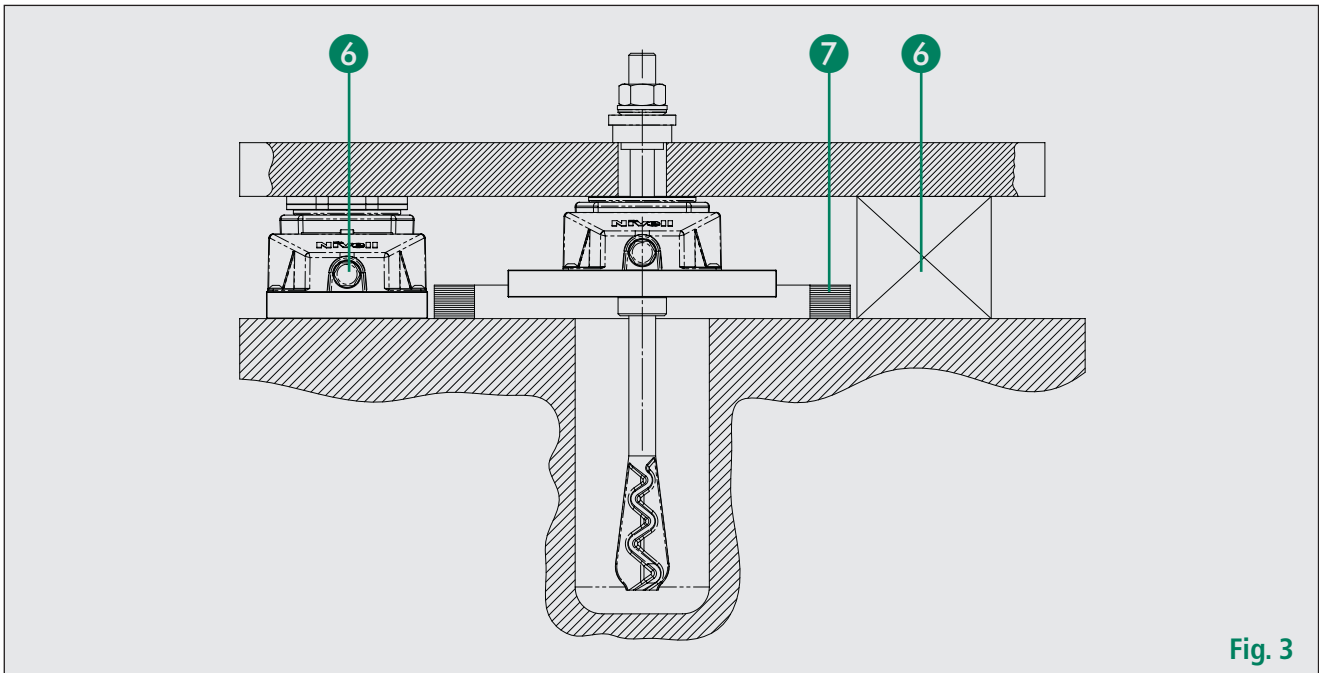


Fig. 3

5. GROUTING MATERIAL

- Prepare the grout or cement. Grout has a fairly short setting time (approx. 3 days). Use in accordance with the manufacturer's instructions.

6. MACHINE ASSEMBLY

Through the attachment of the DK heavy duty anchor to the machine bed:

- Lift the machine and position it over its intended location. Assemble the DK heavy duty anchor incl. Wellenstein screw:
 - Place the centring bush (Fig. 1, pos. 2) on the machine bore hole
 - Screw down the DK heavy duty anchor using the Wellenstein screw
 - Position the grouting frame (Fig. 3, pos. 7)
- Lower the machine, then support it on auxiliary wedges or other supporting blocks (Fig. 3, pos. 6) and adjust horizontally. Set vertically to $\pm 0.5\text{mm}$
- Grout the DK heavy duty anchor using grout or cement. In doing so, ensure that the grout/cement

does not exceed the level of the heavy duty anchor base plate. Once the grout/cement has set – approx. 3 days with grout and 20 days with cement (please refer to manufacturer's instructions) – the grouting frame (Fig. 3, pos. 7) and the auxiliary wedges or auxiliary blocks (Fig. 3, pos. 6) can be removed. Lower the auxiliary wedges and remove. Remove the auxiliary blocks by gently lifting the machine and the DK heavy duty anchor.

- Loosen the compression fitting and remove the centring bush (Fig. 1, pos. 2) for the vertical levelling process. You can now finish levelling the machine. Assemble and tighten the spherical/conical washer, U-washers and nuts. Slightly readjust by moving the machine upwards, if necessary.