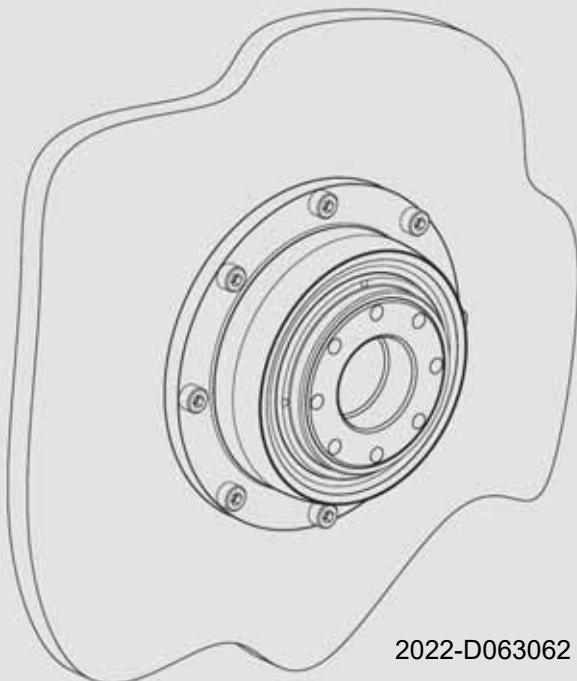
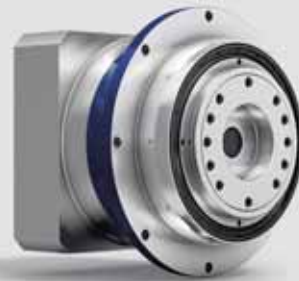


Instruction Sheet

## Replacing the adapter plate / Rear centering TP<sup>+</sup>/DP<sup>+</sup>/RP<sup>+</sup>



2022-D063062



Revision: 01

**WITTENSTEIN alpha GmbH**

Walter-Wittenstein-Straße 1

D-97999 Igersheim

Germany

**Customer Service department**

		✉	)
Deutschland	WITTENSTEIN alpha GmbH	service@wittenstein-alpha.de	+49 7931 493-12900
Benelux	WITTENSTEIN BVBA	service@wittenstein.biz	+32 9 326 73 80
Brasil	WITTENSTEIN do Brasil	vendas@wittenstein.com.br	+55 15 3411 6454
中国	威腾斯坦（杭州）实业有限公司	service@wittenstein.cn	+86 571 8869 5856
Österreich	WITTENSTEIN GmbH	office@wittenstein.at	+43 2256 65632-0
Danmark	WITTENSTEIN AB	info@wittenstein.dk	+45 4027 4151
France	WITTENSTEIN sarl	info@wittenstein.fr	+33 134 17 90 95
Great Britain	WITTENSTEIN Ltd.	sales.uk@wittenstein.co.uk	+44 1782 286 427
Italia	WITTENSTEIN S.P.A.	info@wittenstein.it	+39 02 241357-1
日本	ヴィッテンシュタイン株式会社	sales@wittenstein.jp	+81-3-6680-2835
North America	WITTENSTEIN holding Corp.	technicalsupport@wittenstein-us.com	+1 630-540-5300
España	WITTENSTEIN S.L.U.	info@wittenstein.es	+34 93 479 1305
Sverige	WITTENSTEIN AB	info@wittenstein.se	+46 40-26 50 10
Schweiz	WITTENSTEIN AG Schweiz	sales@wittenstein.ch	+41 81 300 10 30
台湾	威騰斯坦有限公司	info@wittenstein.tw	+886 3 287 0191
Türkiye	WITTENSTEIN Güç Aktarma Sistemleri Tic. Ltd. Şti.	info@wittenstein.com.tr	+90 216 709 21 23

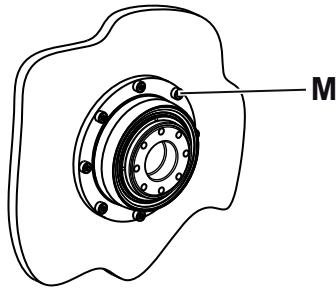
© WITTENSTEIN alpha GmbH 2019

Subject to technical and content changes without notice.

## Table of Contents

<b>1</b>	<b>About this manual</b> .....	<b>2</b>
<b>2</b>	<b>Safety</b> .....	<b>2</b>
2.1	Personnel .....	2
<b>3</b>	<b>Disassembly / replacement</b> .....	<b>2</b>
3.1	Disassembling the adapter plate.....	2
<b>4</b>	<b>Assembly</b> .....	<b>3</b>
4.1	Preparations.....	3
4.2	Attaching gearboxes with rear centering to a machine .....	4
4.2.1	Mounting with through-holes .....	4
4.2.2	Mounting with slotted holes .....	4
4.3	Mounting the adapter plate .....	5
<b>5</b>	<b>Appendix</b> .....	<b>6</b>
5.1	Name plate.....	6
5.2	Ordering code .....	6
5.3	Information for mounting the adapter plate .....	6
5.3.1	DP <sup>+</sup> / HG <sup>+</sup> / RP <sup>+</sup> / SP <sup>+</sup> / TP <sup>+</sup> / XP <sup>+</sup> .....	7
5.3.2	NP / NPL / NPR / NPS / NPT .....	8
5.3.3	CP/CPS .....	8
5.4	Tightening torques for common thread sizes in general mechanical engineering .....	9
5.5	Disposal .....	9
5.6	Supplementary information .....	9

## 1 About this manual



These instructions describe the replacement of the adapter plate on the gearbox as well as the motor-side installation of a gearbox with rear centering [M] on a machine. It is an amendment to the standard operating manual. Contradictory specifications in the standard manual thereby become void.

The operator must ensure that all persons assigned to install, operate, or maintain the gearbox have read and understand these instructions in full.

Store these instructions within reach of the gearbox.

These **safety instructions** should be shared with colleagues working in the vicinity of the device to ensure individual safety.

The original instructions were prepared in German; all other language versions are translations of these instructions.

The signal words, safety symbols, and information symbols are explained in the standard manual.

## 2 Safety

These instructions, especially the safety instructions and the rules and regulations valid for the operating site, must be observed by all persons working with the gearbox.

In addition to the safety instructions in this manual and in the standard manual, also observe any (legal and otherwise) applicable environmental and accident prevention rules and regulations (e.g. personal safety equipment).

### 2.1 Personnel

Only technicians who have read and understood this operating manual may perform work on the gearbox. Based on their training and experience, technicians must be able to evaluate the tasks assigned to them, in order to recognize and avoid risks.

## 3 Disassembly / replacement

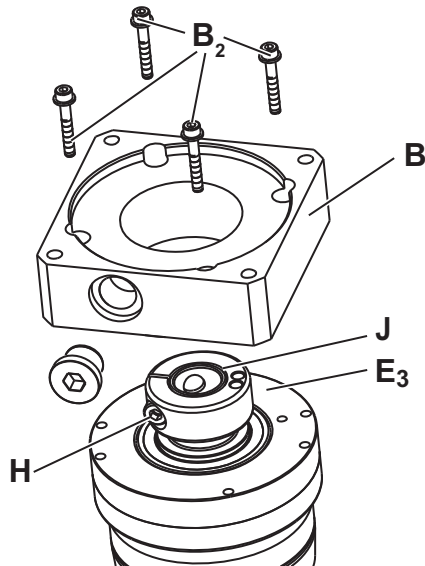
• Also observe all instructions in the standard manual.

① Before motor-side installation on a machine, the adapter plate must be disassembled depending on the product type and gearbox size.

### 3.1 Disassembling the adapter plate

The fastening screws of the adapter plate can also hold the gearbox housing together.

- When reusing the adapter plate, mark its position.
- Clamp the gearbox vertically (with the adapter plate [B] upwards).




- Loosen the fastening screws [B<sub>2</sub>] in the adapter plate [B] and remove it.
- Remove adhesive residue from the threaded bores for the fastening screws.
- ① Use a suitable thread cutter.
- ① If you only want to replace the adapter plate, please observe the instructions for installation of the new adapter plate in chapter 4.3 "Mounting the adapter plate".

## 4 Assembly

	<ul style="list-style-type: none"> <li>● Also observe all instructions in the standard manual.</li> <li>● Observe the safety and processing instructions for the threadlocker to be used.</li> </ul>
--	--

### 4.1 Preparations

	NOTICE
	<p><b>Pressurized air can damage the gearbox seals.</b></p> <ul style="list-style-type: none"> <li>● Do not use pressurized air to clean the gearbox.</li> </ul>
	<p><b>Directly sprayed cleaning agents can alter the frictional values of the clamping hub.</b></p> <ul style="list-style-type: none"> <li>● Only spray cleaning agents onto a cloth for wiping off the clamping hub.</li> </ul>

	<p><b>In rare cases, a grease lubricated gearbox may show a small leak at the input (sweating).</b></p> <p>To prevent seeping, we recommend to seal the surfaces between</p> <ul style="list-style-type: none"> <li>- adapter plate and drive housing (gearbox), as well as between</li> <li>- adapter plate and motor,</li> </ul> <p>using a surface sealing adhesive (e.g. Loctite® 573 or 574).</p>
--	--

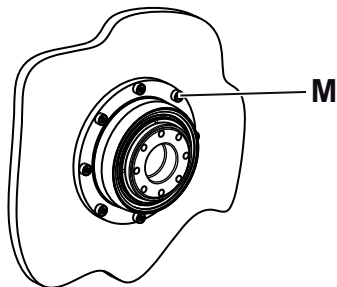
- Clean/degrease and dry the following components using a clean and lint-free cloth and a grease-dissolving, non-aggressive cleaning agent:
  - All fitting surfaces to neighboring components
  - Adapter plate
  - Fastening screws
- Dry all fitting surfaces to neighboring components in order to achieve the proper friction values for the screw connections.
- In addition, check the fitting surfaces for damage and impurities.

## 4.2 Attaching gearboxes with rear centering to a machine

This section is only valid for TP<sup>+</sup>/DP<sup>+</sup>/RP<sup>+</sup> gearboxes with rear centering.

- Center the gearbox in the machine bed.
- Apply threadlocker (e.g. Loctite<sup>®</sup> 243) to the fastening screws.
- ① Mount the gearbox so that the identification plate can still be read.
- ① The specified screw sizes and tightening torques can be found in the standard manual.

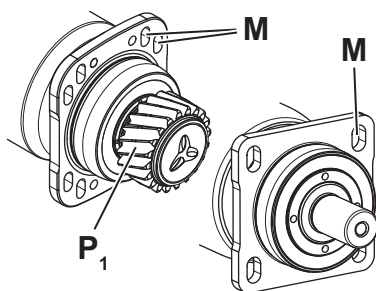
### 4.2.1 Mounting with through-holes



- ① We recommend doing without washers as long as the material of the screw surface features sufficient interface pressure.
- Fasten the gearbox on the machine with the fastening screws through the through-holes [M].

### 4.2.2 Mounting with slotted holes

- Use only the washers included within the scope of delivery for fastening the gearbox to a machine.

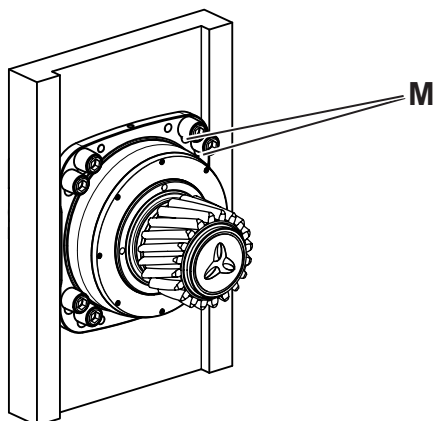


The gearbox can be optionally equipped with an output pinion [P<sub>1</sub>]. The gearing backlash between output pinion and toothed rack/counter-wheel can be adjusted using the slotted holes [M] and the lateral guides. An additional adjustment mechanism is no longer necessary.

- ① Detailed information on the design of the gearbox interface is available on request.
- ① For the proper setting of the gearing backlash, you will find further information in the "alpha rack and pinion system" manual (doc. no. 2022–D001333). The manual will be provided by our Sales / Customer Service department on request. Please always provide the serial number.

**Operating the gearbox without a motor (e.g. using a hand wheel) is permitted for setting / aligning the output pinion on the toothed rack.**

- When doing so, ensure **never** to tilt / bend the clamping hub.

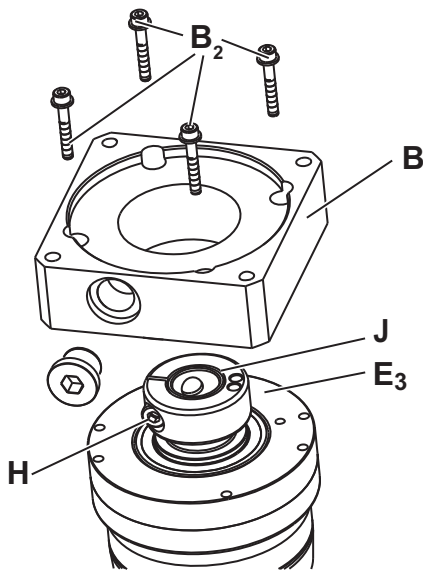


- Slide the washers onto the fastening screws.
- Fasten the gearbox to the machine with the fastening screws through the slotted holes [M].
- Carry out the pinning of the gearbox according to the standard manual.

4.3 Mounting the adapter plate

	NOTICE
<p><b>Operation without an adapter plate might lead to damage.</b></p> <ul style="list-style-type: none"> <li>● Only install your own adapter plate or replace an adapter plate according to the specifications of <b>WITTENSTEIN alpha GmbH</b>.</li> <li>● Operation without an adapter plate is prohibited.</li> </ul>	

- When attaching a **new** adapter plate, only use new screws (DIN EN ISO 4762) and clamping washers (DIN 6796).
  - ① Only use adapter plates approved by **WITTENSTEIN alpha GmbH**.
  - ① Notes on the disposal of components no longer in use can be found in chapter 5.5 "Disposal".



- Position the adapter plate on the drive side [E<sub>3</sub>].
- Select the correct fastening screws (see chapter 5.3 "Information for mounting the adapter plate").
- Place the clamping washers on the fastening screws [B<sub>2</sub>].
- Coat the fastening screws with a threadlocker (e.g. Loctite® 243).
- Install the fastening screws and tighten them in a criss-cross pattern using a torque wrench.
- ① For the specified tightening torque, see chapter 5.4 "Tightening torques for common thread sizes in general mechanical engineering".
- Carry out any further tasks according to the standard manual.

## 5 Appendix

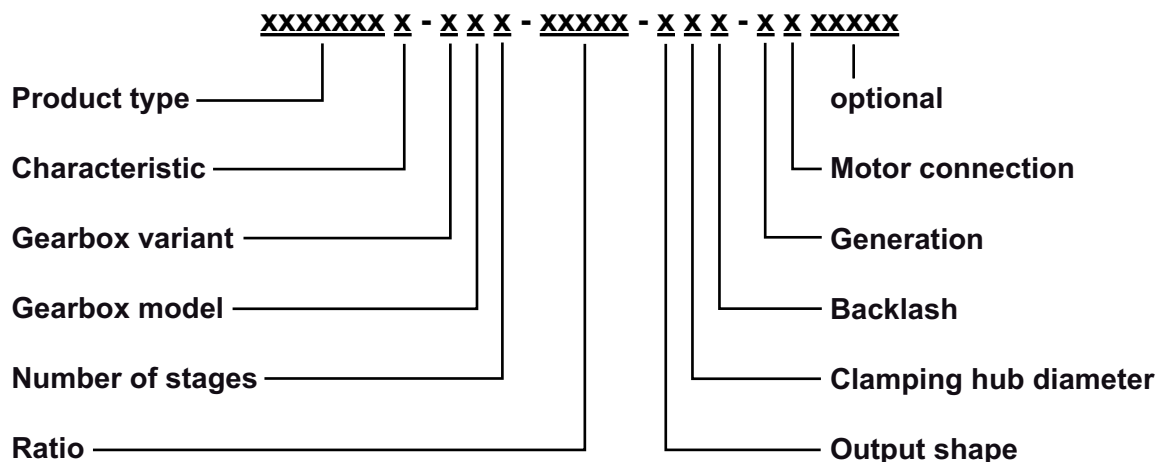
### 5.1 Name plate

The identification plate is attached to the gear housing or the input flange.

		Designation
	A	Ordering code (see Chapter 5.2 "Ordering code")
	B	Ratio i
	C	Customer material number (optional)
	D	Serial number
	E	Lubricant
	F	Production date
	G	Data matrix code (optional)

Tbl-1: Identification plate (sample values)

### 5.2 Ordering code



More information is available in our catalog or at [www.wittenstein-alpha.de](http://www.wittenstein-alpha.de).

### 5.3 Information for mounting the adapter plate

Product type overview						
Product type	CP/CPS	CPK/CPK <sup>+</sup>	CVH/CVS	DP <sup>+</sup>	DPK <sup>+</sup>	HDP <sup>+</sup> /HDV
see table	"Tbl-5"	x*	x*	"Tbl-3"	x*	x*
Product type	HG <sup>+</sup>	LK <sup>+</sup> /LPK <sup>+</sup> / LPBK <sup>+</sup>	LP <sup>+</sup> /LPB <sup>+</sup>	NPK/NPLK/ NPSK/ NPRK/NPTK	NP/NPL/ NPS/NPR/ NPT	NVH/NVS
see table	x*	x*	x*	x*	"Tbl-4"	x*
Product type	PKF	RP <sup>+</sup>	RPC <sup>+</sup> / RPK <sup>+</sup>	SC <sup>+</sup> /SPC <sup>+</sup>	SK <sup>+</sup> /SPK <sup>+</sup>	SP <sup>+</sup>
see table	x*	"Tbl-3"	x*	x*	x*	"Tbl-3"
Product type	TK <sup>+</sup> /TPK <sup>+</sup>	TP <sup>+</sup>	TPC <sup>+</sup>	VH <sup>+</sup> /VS <sup>+</sup> /VT <sup>+</sup>	XP <sup>+</sup>	XPC <sup>+</sup> /XPK <sup>+</sup>
see table	x*	"Tbl-3"	x*	x*	"Tbl-3"	x*
x*: upon request						

Tbl-2: Product type overview



5.3.1 DP<sup>+</sup> / HG<sup>+</sup> / RP<sup>+</sup> / SP<sup>+</sup> / TP<sup>+</sup> / XP<sup>+</sup>

Fastening screws (DIN EN ISO 4762) for adapter plate**, Property class 12.9, Screw size x Length [ ]x[mm]									
Gearbox size	Number of stages	Code letter (.)*							
		B	C	E	G / H	I / K	M	N	O
DP <sup>+</sup> 004 SP <sup>+</sup> 060 TP <sup>+</sup> 004 XP <sup>+</sup> 010	1	M3x25		M4x20	-	-	-	-	-
	2	M3x16	M3x45	-	-	-	-	-	-
	3	-	M3x16	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
DP <sup>+</sup> 010 SP <sup>+</sup> 075 TP <sup>+</sup> 010 XP <sup>+</sup> 020	1	-	M4x30		M5x18	-	-	-	-
	2	M3x16		M4x55	-	-	-	-	-
	3	-	M3x16	-	-	-	-	-	-
DP <sup>+</sup> 025 RP <sup>+</sup> 030 SP <sup>+</sup> 100 TP <sup>+</sup> 025 XP <sup>+</sup> 030	1	-	-	M5x35		M6x25	-	-	-
	2	-	M4x20		M5x70	-	-	-	-
	3	-	-	M4x20	-	-	-	-	-
DP <sup>+</sup> 050 RP <sup>+</sup> 040 SP <sup>+</sup> 140 TP <sup>+</sup> 050 XP <sup>+</sup> 040	1	-	-	-	M6x45		M8x30	-	-
	2	-	-	M5x20		M6x90	-	-	-
	3	-	-	-	M5x20	-	-	-	-
RP <sup>+</sup> 050 SP <sup>+</sup> 180 TP <sup>+</sup> 110 XP <sup>+</sup> 050	1	-	-	-	-	M8x50			-
	2	-	-	-	M6x25		M8x105	-	-
	3	-	-	-	-	M6x25	-	-	-
RP <sup>+</sup> 060 TP <sup>+</sup> 300	1	-	-	-	-	-	-	M10x35	-
	2	-	-	-	-	-	M8x30	-	-
	3	-	-	-	-	M6x25	-	-	-
RP <sup>+</sup> 080 TP <sup>+</sup> 500	1	-	-	-	-	-	-	-	M12x40
	2	-	-	-	-	-	M8x30	-	-
	3	-	-	-	-	M8x105	-	-	-
SP <sup>+</sup> 210	1	-	-	-	-	-	-	M10x40	-
	2	-	-	-	-	-	M8x30	-	-
SP <sup>+</sup> 240	1	-	-	-	-	-	-	-	M12x45
	2	-	-	-	-	-	M8x30	-	-

\* Ordering code: xxxxxxxx-xxx-xxxx-x(.)\*x-xx (see chapter 5.1 "Name plate")  
 \*\* The value for the tightening torque can be found in chapter 5.4 "Tightening torques for common thread sizes in general mechanical engineering".

Tbl-3: Fastening screws (DIN EN ISO 4762) for adapter plate DP<sup>+</sup> / RP<sup>+</sup> / SP<sup>+</sup> / TP<sup>+</sup> / XP<sup>+</sup>

## 5.3.2 NP / NPL / NPR / NPS / NPT

Fastening screws (DIN EN ISO 4762) for adapter plate**, Property class 10.9, Screw size x Length [ ]x[mm]									
Gearbox size	Number of stages	Code letter (.)*							
		Z	A	B	C	D	E	G / H	I / K
NPx005	1	M3x20			M3x10	-	-	-	-
	2	M3x20			M3x10	-	-	-	-
NPx015	1	-	M3x20			M4x16			-
	2	M3x20			M3x35	-	-	-	-
NPx025	1	-	-	-	M4x30			M5x16	-
	2	-	M3x20			M4x50		-	-
NPx035	1	-	-	-	-	-	M5x30		M6x22
	2	-	-	-	M4x30			M5x55	-
NPx045	1	-	-	-	-	M8x50			M6x45
	2	-	-	-	-	-	M5x30		M6x75

\* Ordering code: xxxxxxxx-xxx-xxxxx-x(.)-x-xx (see chapter 5.1 "Name plate")  
 \*\* The value for the tightening torque can be found in chapter 5.4 "Tightening torques for common thread sizes in general mechanical engineering".

Tbl-4: Fastening screws (DIN EN ISO 4762) for adapter plate NP / NPL / NPS / NPR / NPT

## 5.3.3 CP/CPS

Fastening screws (DIN EN ISO 4762) for adapter plate**, Screw size x Length [ ]x[mm]						
Gearbox size	Number of stages	Code letter (.)*				
		B	C	E	G / H	I / K
		Property class 8.8		Property class 10.9		
CP005	1	M3x20	-	-	-	-
	2	M3x20	-	-	-	-
CPx015	1	-	M3x25	M4x22	-	-
	2	-	M3x25***	M4x22	-	-
CPx025	1	-	-	M4x30	M6x25	-
	2	-	-	M4x30***	M6x25	-
CPx035	1	-	-	-	M6x45	M6x30
	2	-	-	-	M6x45***	M6x30
CP045	1	-	-	-	-	M6x45
	2	-	-	M5x30		M6x75

\* Ordering code: xxxxxxxx-xxx-xxxxx-x(.)-x-xx (see chapter 5.1 "Name plate")  
 \*\* The value for the tightening torque can be found in chapter 5.4 "Tightening torques for common thread sizes in general mechanical engineering".  
 \*\*\* **The following only applies to gearboxes with ratio i=32, 64:** Deviating screw length; measure the correct screw length.

Tbl-5: Fastening screws (DIN EN ISO 4762) for adapter plate CP / CPS

**5.4 Tightening torques for common thread sizes in general mechanical engineering**

The specified tightening torques for set screws and nuts are calculated values and are based on the following conditions:

- Calculation in accordance with VDI 2230 (February 2003 version)
- Friction value for thread and contact surfaces  $\mu=0.10$
- Utilization of the yield stress 90%
- Torque tools type II classes A and D in accordance with ISO 6789

The settings are values rounded to usual commercial scale gradations or setting possibilities.

- Use the **exact** values in this table to set your tools.

	Tightening torque [Nm] with thread												
Property class screw / nut	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
<b>8.8 / 8</b>	1.15	2.64	5.2	9.0	21.5	42.5	73.5	118	180	258	362	495	625
<b>10.9 / 10</b>	1.68	3.88	7.6	13.2	32.0	62.5	108	173	264	368	520	700	890
<b>12.9 / 12</b>	1.97	4.55	9.0	15.4	37.5	73.5	126	202	310	430	605	820	1040

Tbl-6: Tightening torques for set screws and nuts

**5.5 Disposal**

- Dispose any components no longer in use at the disposal centers intended for this purpose.
  - ① Please observe the valid national regulations for waste disposal.

**5.6 Supplementary information**

- For further information, please visit our website at [www.wittenstein-alpha.de](http://www.wittenstein-alpha.de). Or contact our Customer Service department at [service@wittenstein-alpha.de](mailto:service@wittenstein-alpha.de)

**WITTENSTEIN alpha GmbH**  
 Customer Service department  
 Walter-Wittenstein-Straße 1  
 D-97999 Igersheim, Germany  
 Tel.: +49 7931 493-12900

© WITTENSTEIN alpha GmbH 2019

## Revision history

Revision	Date	Comment	Chapter
01	16.10.19	New version draft	All



WITTENSTEIN alpha GmbH · Walter-Wittenstein-Straße 1 · 97999 Igersheim · Germany  
Tel. +49 7931 493-12900 · [info@wittenstein.de](mailto:info@wittenstein.de)

**WITTENSTEIN – one with the future**

**[www.wittenstein-alpha.de](http://www.wittenstein-alpha.de)**