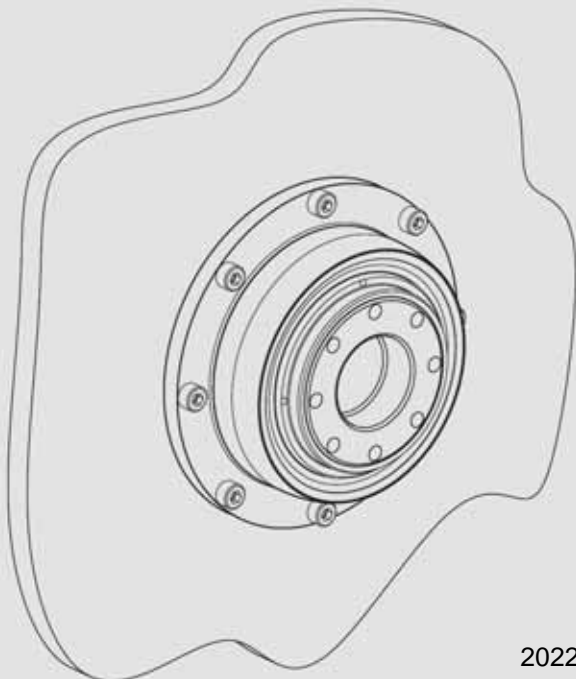
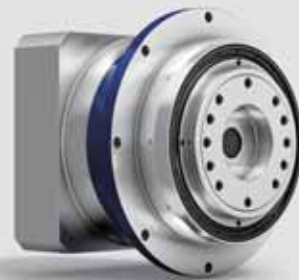


/
TP⁺/DP⁺/RP⁺



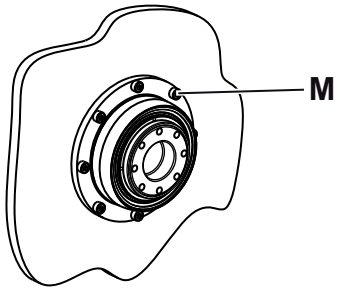
WITTENSTEIN alpha GmbH

Walter-Wittenstein-Straße 1
D-97999 Igersheim
Germany

		✉)
Deutschland	WITTENSTEIN alpha GmbH	service@wittenstein.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.	customerservice@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	威腾斯坦有限公司	info@wittenstein.tw	+886 3 287 0191
Türkiye	WITTENSTEIN Güç Aktarma Sistemleri Tic. Ltd. Şti.	info@wittenstein.com.tr	+90 216 709 21 23

1	.....	2
2	.....	2
2.1	.....	2
3	/	2
3.1	.....	2
4	.....	3
4.1	.....	3
4.2	.....	4
4.2.1	.....	4
4.2.2	.....	4
4.3	.....	5
4.4	.....	6
5	.....	8
5.1	.....	8
5.2	.....	9
5.3	.....	9
5.3.1 DP ⁺ / HG ⁺ / RP ⁺ / SP ⁺ / TP ⁺ / XP ⁺		10
5.3.2 NP / NPL / NPR / NPS / NPT / NTP		11
5.3.3 CP / CPS		11
5.3.4 VT ⁺ , VH ⁺ , VS ⁺ / NVH, NVS / CVH, CVS		12
5.4	.....	12
5.5	.....	13
5.6 가	.....	13

1



[M]

가

가

2

가

(

2.1

가

3

/

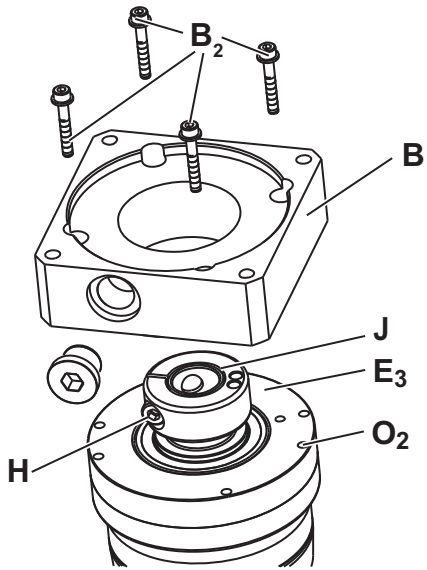


①

3.1

-
-

([B]).



- [B] [B₂]
- [O₂]
- ⓘ ⓘ

1.3 "

4

	<ul style="list-style-type: none"> • 가 • 가
--	--

4.1

	<h2 style="margin: 0;">참 고</h2>
	<p>가</p> <ul style="list-style-type: none"> • 가
	<ul style="list-style-type: none"> • WITTENSTEIN alpha GmbH

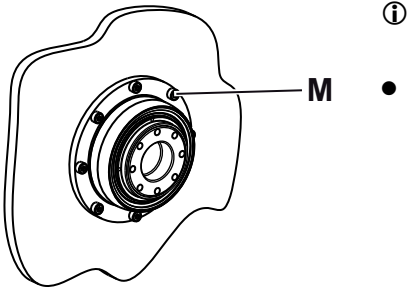
	<p>Hygienic Design ()</p> <p>()</p> <p>(: Loctite® 573 574)</p> <p>ⓘ " "(2022 -</p> <p>D063062) " "(/</p> <p>2098 - D021746)</p>
--	---

4.2

TP⁺/DP⁺/RP⁺

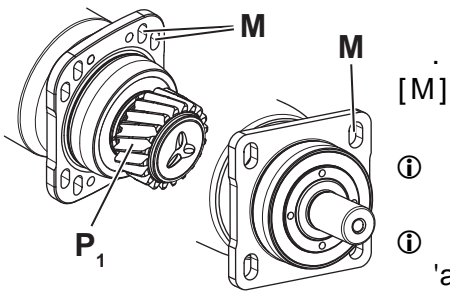
(:Loctite[®] 243)

4.2.1



[M]

4.2.2



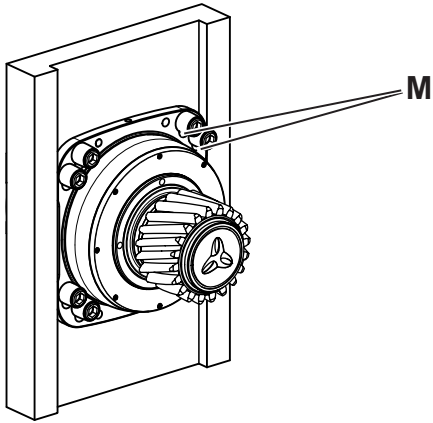
[P₁]

[M]

'alpha

(2022-D001333)

	가
	가



- -
 -
- [M]

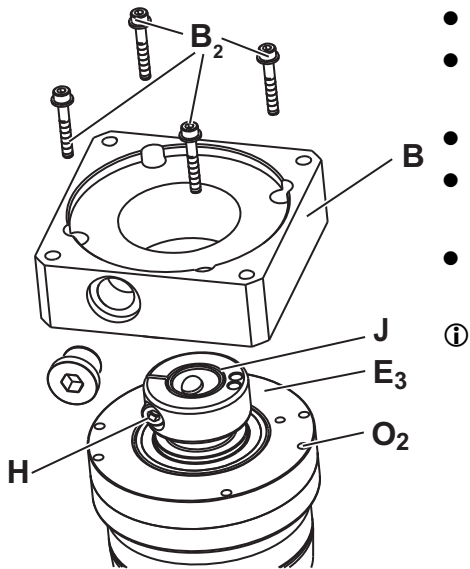
4.3

	참 고
<ul style="list-style-type: none"> • • <p>GmbH</p>	<p>WITTENSTEIN alpha</p>

- (DIN EN ISO 4762) (DIN 6796)

① WITTENSTEIN alpha GmbH

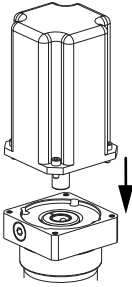
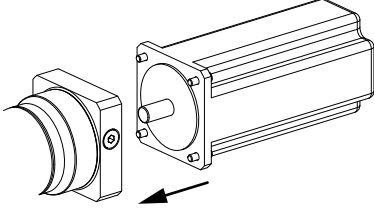
① 1.5 " "



- [E₃]
- (1.3 "
-)
- [B₂]
- (: Loctite® 243)

가 1.4 " "

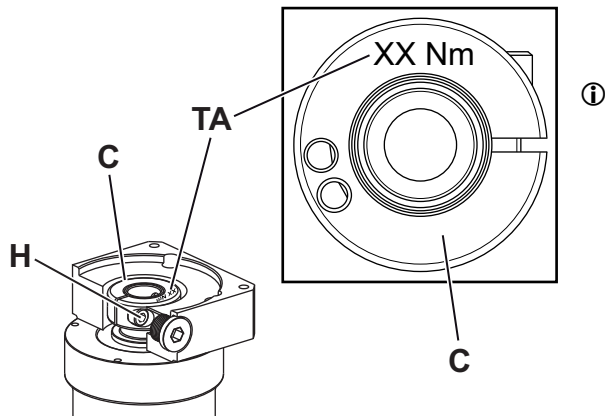
- ("Tb1-1").

		:
		4.4 "

Tbl-1:

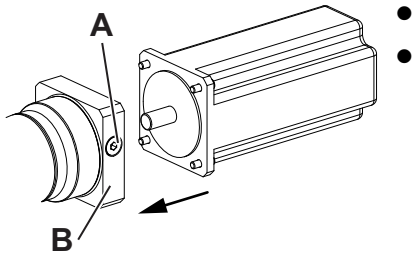
4.4

	<ul style="list-style-type: none"> • 가 • Hygienic Design : • (: Loctite® 573) • Hygienic Design <p>① 가 WITTENSTEIN alpha GmbH 2098-D038000) "(www.wittenstein-alpha.de</p>
--	--

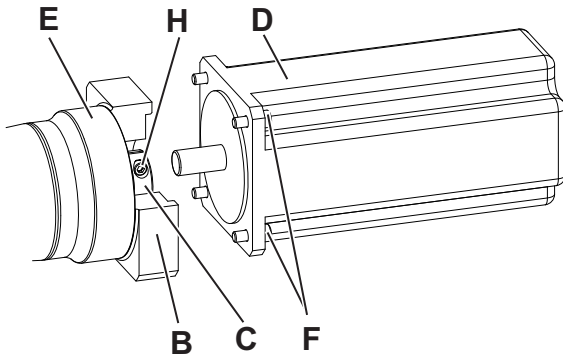


[H]
[C]

[TA]



[A] [B] / /



• [C] [H]가
 • [C] [H]
 • [E]
 ⓘ

ⓘ [H₁]가 [I]
 ([H₁]가
 ("Tbl-2").

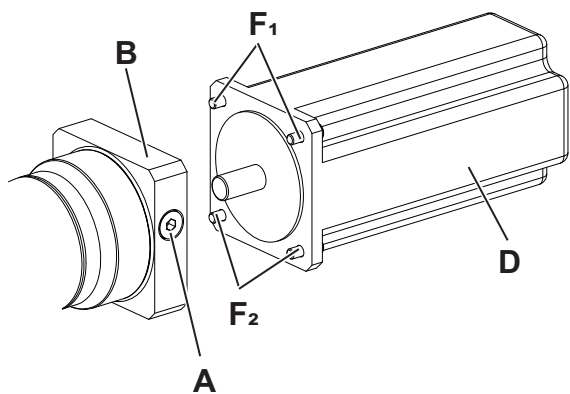
ⓘ 가 [H₁] :
 ⓘ 가 [H₁] :
 ("Tbl-2",)
 가 [H₂] :
 () ("Tbl-2")
 90

ⓘ [D] [B] 가

H ₁	I	H ₁	,
J	K	H ₂	,
H ₂	L	I	
	L ₁	J	
		K	
		L	
		L ₁	

Tbl-2: ,

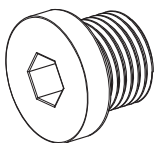
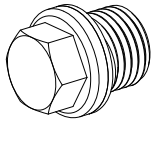
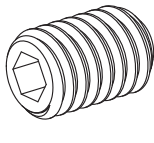
• [C] [H] ([H] 5%).
 ⓘ



- [F] (:
Loctite® 243)
 - [D]
[B] [F₁]
 - [F₂]
 - [C]
 - [H] [C] [H]
- ①

- 가 [B]
- [A₁] 가 [B]
- 가 [A₂] 가 (Hygienic Design)
-), [B]
- [A₃] [B]

① "Tbl-3"

[A]		[mm]	[Nm]							
			3	5	6	8	10	12	13	17
A ₁			-	10	-	35	50	70	-	-
A ₂		가 (Hygienic Design)	-	-	-	-	3	-	5	5.5
A ₃			1.5	3	3	6	-	-	-	-

Tbl-3: /

- 가

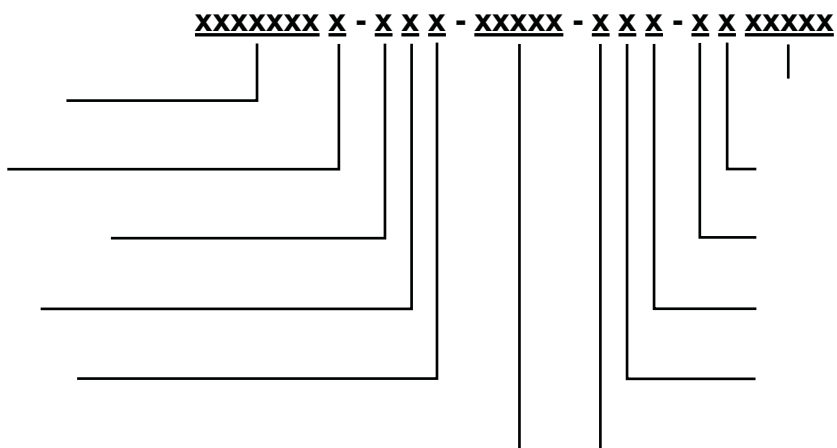
5

5.1

<p>xxxxxxx xxx Mat. No.: 23456789 SN: 1234567 Lubrication: xxx WITTENSTEIN xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx i= xx DMF: 06/20 Made in xxx Code: xxx</p>	A	(5.2 " ")
	B	i
	C	()
	D	
	E	
	F	
	G	DataMatrix (WITTENSTEIN Service Portal)
	H	(WITTENSTEIN Service Portal)

Tbl-4: ()

5.2



www.wittenstein-alpha.de

5.3

	CP/CPS	CPK/CPSK	CVH/CVS	DP ⁺	DPK ⁺	HDP ⁺ /HDV
.	"Tbl-8"	x*	"Tbl-9"	"Tbl-6"	x*	x*
	HG⁺	LK⁺/LPK⁺/LPBK⁺	LP⁺/LPB⁺	NPK/NPLK/ NPSK/ NPRK/NPTK	NP/NPL/ NPS/NPR/ NPT/NTP	NVH/NVS
.	x*	x*	x*	x*	"Tbl-7"	"Tbl-9"
	PKF	RP⁺	RPC⁺/ RPK⁺	SC⁺/SPC⁺	SK⁺/SPK⁺	SP⁺
.	x*	"Tbl-6"	x*	x*	x*	"Tbl-6"
	TK⁺/TPK⁺	TP⁺	TPC⁺	VH⁺/VS⁺/VT⁺	XP⁺	XPC⁺/XPK⁺
.	x*	"Tbl-6"	x*	"Tbl-9"	"Tbl-6"	x*
x*:						

Tbl-5:

5.3.1 DP⁺ / HG⁺ / RP⁺ / SP⁺ / TP⁺ / XP⁺

(DIN EN ISO 4762)**, 12.9, x []x[mm]									
		(.)*							
		B	C	E	G / H	I / K	M	N	O
DP ⁺ 004 SP ⁺ 060 TP ⁺ 004 XP ⁺ 010	1	M3x25		M4x20	-	-	-	-	-
	2	M3x16	M3x45	-	-	-	-	-	-
DP ⁺ 010 SP ⁺ 075 TP ⁺ 010 XP ⁺ 020	1	-	M4x30		M5x18	-	-	-	-
	2	M3x16		M4x55	-	-	-	-	-
	3	-	M3x16	-	-	-	-	-	-
DP ⁺ 025 RP ⁺ 030 SP ⁺ 100 TP ⁺ 025 XP ⁺ 030	1	-	-	M5x35		M6x25	-	-	-
	2	-	M4x20		M5x70	-	-	-	-
	3	-	-	M4x20	-	-	-	-	-
DP ⁺ 050 RP ⁺ 040 SP ⁺ 140 TP ⁺ 050 XP ⁺ 040	1	-	-	-	M6x45		M8x30	-	-
	2	-	-	M5x20		M6x90	-	-	-
	3	-	-	-	M5x20	-	-	-	-
DP ⁺ 110 RP ⁺ 050 SP ⁺ 180 TP ⁺ 110 XP ⁺ 050	1	-	-	-	-	M8x50			-
	2	-	-	-	M6x25		M8x105	-	-
	3	-	-	-	-	M6x25	-	-	-
RP ⁺ 060 TP ⁺ 300	1	-	-	-	-	-	-	M10x35	-
	2	-	-	-	-	-	M8x30	-	-
	3	-	-	-	-	M6x25	-	-	-
RP ⁺ 080 TP ⁺ 500	1	-	-	-	-	-	-	-	M12x40
	2	-	-	-	-	-	M8x30	-	-
	3	-	-	-	-	M8x105	-	-	-
SP ⁺ 210	1	-	-	-	-	-	-	M10x40	-
	2	-	-	-	-	-	M8x30	-	-
SP ⁺ 240	1	-	-	-	-	-	-	-	M12x45
	2	-	-	-	-	-	M8x30	-	-
**	* : xxxxxxxx-xxx-xxxxx-x(.) [*] x-xx(5.1 " ") 5.4 " "								

Tbl-6:

(DIN EN ISO 4762) DP⁺ / RP⁺ / SP⁺ / TP⁺ / XP⁺

5.3.2 NP / NPL / NPR / NPS / NPT / NTP

(DIN EN ISO 4762)**, 10.9, x []x[mm]									
		(.)*							
		Z	A	B	C	D	E	G / H	I / K
Nxx005	1	M3x20			M3x10	-	-	-	-
	2	M3x20			M3x10	-	-	-	-
Nxx015	1	-	M3x20			M4x16		-	-
	2	M3x20			M3x35	M4x16		-	-
Nxx025	1	-	-	-	M4x30			M5x16	-
	2	-	M3x20			M4x50		M5x16	-
Nxx035	1	-	-	-	-	-	M5x30		M6x22
	2	-	-	-	M4x30			M5x55	M6x22
Nxx045	1	-	-	-	-	M8x50			M6x45
	2	-	-	-	-	-	M5x30		M6x75
* : xxxxxxxxx - xxx - xxxxx - x(.) * x - xx (5.1 " ")									
** 5.4 " "									

Tbl-7:

(DIN EN ISO 4762) NP / NPL / NPS / NPR / NPT / NTP

5.3.3 CP / CPS

(DIN EN ISO 4762)**, x []x[mm]						
		(.)*				
		B	C	E	G / H	I / K
		8.8	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
* : xxxxxxxxx - xxx - xxxxx - x(.) * x - xx (5.1 " ")						
** 5.4 " "						
*** i=32, 64 ; .						

Tbl-8:

(DIN EN ISO 4762) CP / CPS

5.3.4 VT⁺, VH⁺, VS⁺ / NVH, NVS / CVH, CVS

(DIN EN ISO 4762) *,							
12.9, x []x[mm]							
: xxxxxxxx-xxx-xxxxx-x(.) [*] x-xx(5.1 " ")							
		(.) [*]					
		C	E	G	H	K	M
Vx ⁺ /NVx/ CVx 040	1	M3x16	M3x16	-	-	-	-
	2	M3x50 **	M4x20 ***	-	-	-	-
Vx ⁺ /NVx/ CVx 050	1	-	M4x20	M4x20	-	-	-
	2	M3x16	M4x55	-	-	-	-
Vx ⁺ /NVx/ CVx 063	1	-	-	-	M5x20	-	-
	2	-	M4x20	M5x70	-	-	-
Vx ⁺ 080	1	-	-	-	-	M6x25	-
	2	-	-	M5x20	-	M6x100 ***	-
Vx ⁺ 100	1	-	-	-	-	-	M8x30
	2	-	-	-	-	M6x25	M8x105
①							
* 5.4 " "							
** 8.8							
*** 10.9							

Tbl-9: (DIN EN ISO 4762) VT⁺, VH⁺, VS⁺ / NVH, NVS / CVH, CVS

5.4

⇒ VDI 2230(2015 11)

⇒ μ = 0.10

⇒ 90%

⇒ ISO 6789 A D II

•

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

Tbl-10:

5.5

-

①

가

5.6

-

가

: www.wittenstein-alpha.de.

: service@wittenstein-alpha.de

WITTENSTEIN alpha GmbH

Walter-Wittenstein-Straße 1

D-97999 Igersheim

: +49 7931 493-12900

© WITTENSTEIN alpha GmbH 2022

01	16.10.2019		
02	26.09.2022	VT ⁺ , VH ⁺ , VS ⁺ / NVH, NVS / CVH, CVS	5.3



WITTENSTEIN alpha GmbH · Walter-Wittenstein-Straße 1 · 97999 Igersheim · Germany
Tel. +49 7931 493-12900 · info@wittenstein.de

WITTENSTEIN – one with the future

www.wittenstein-alpha.de