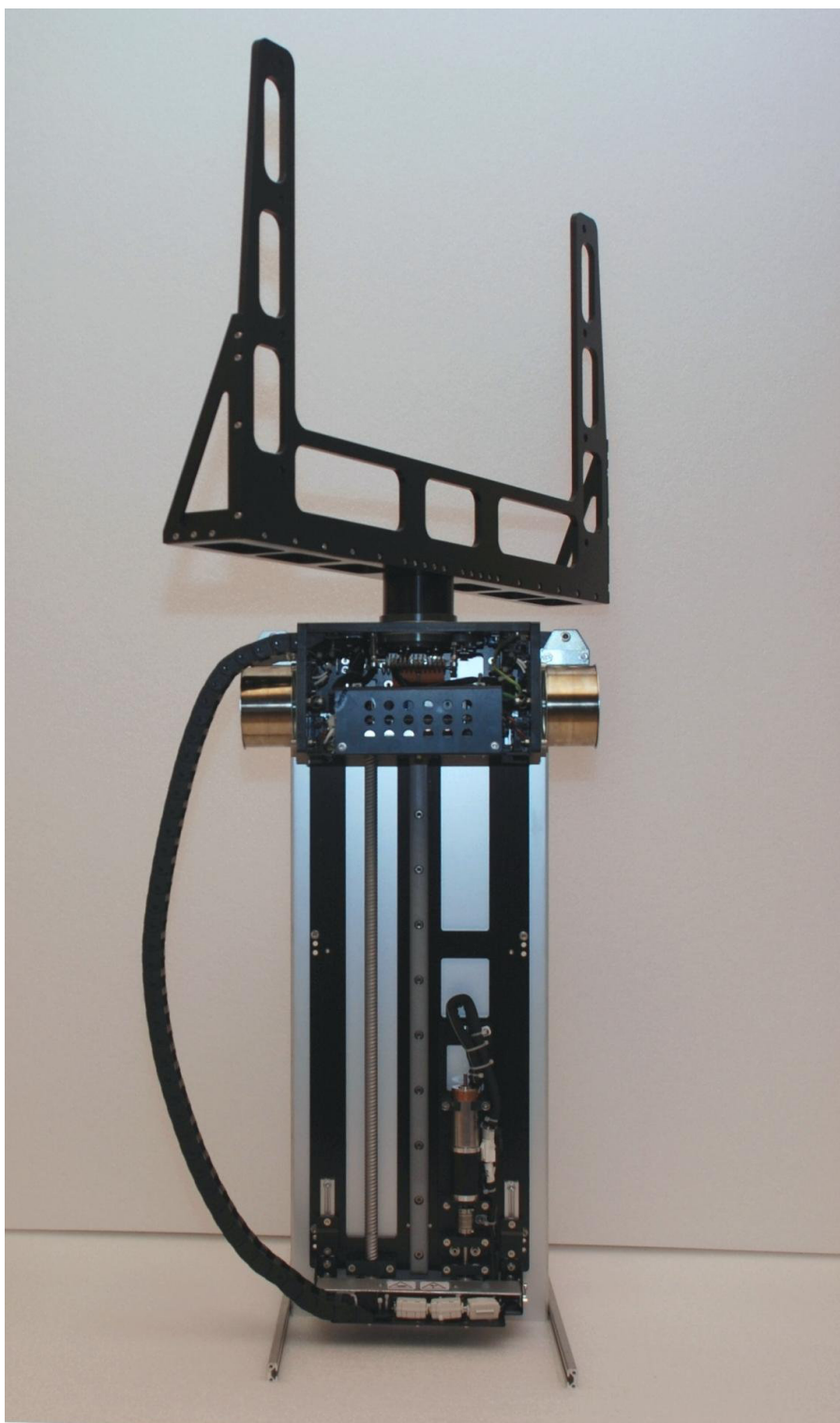


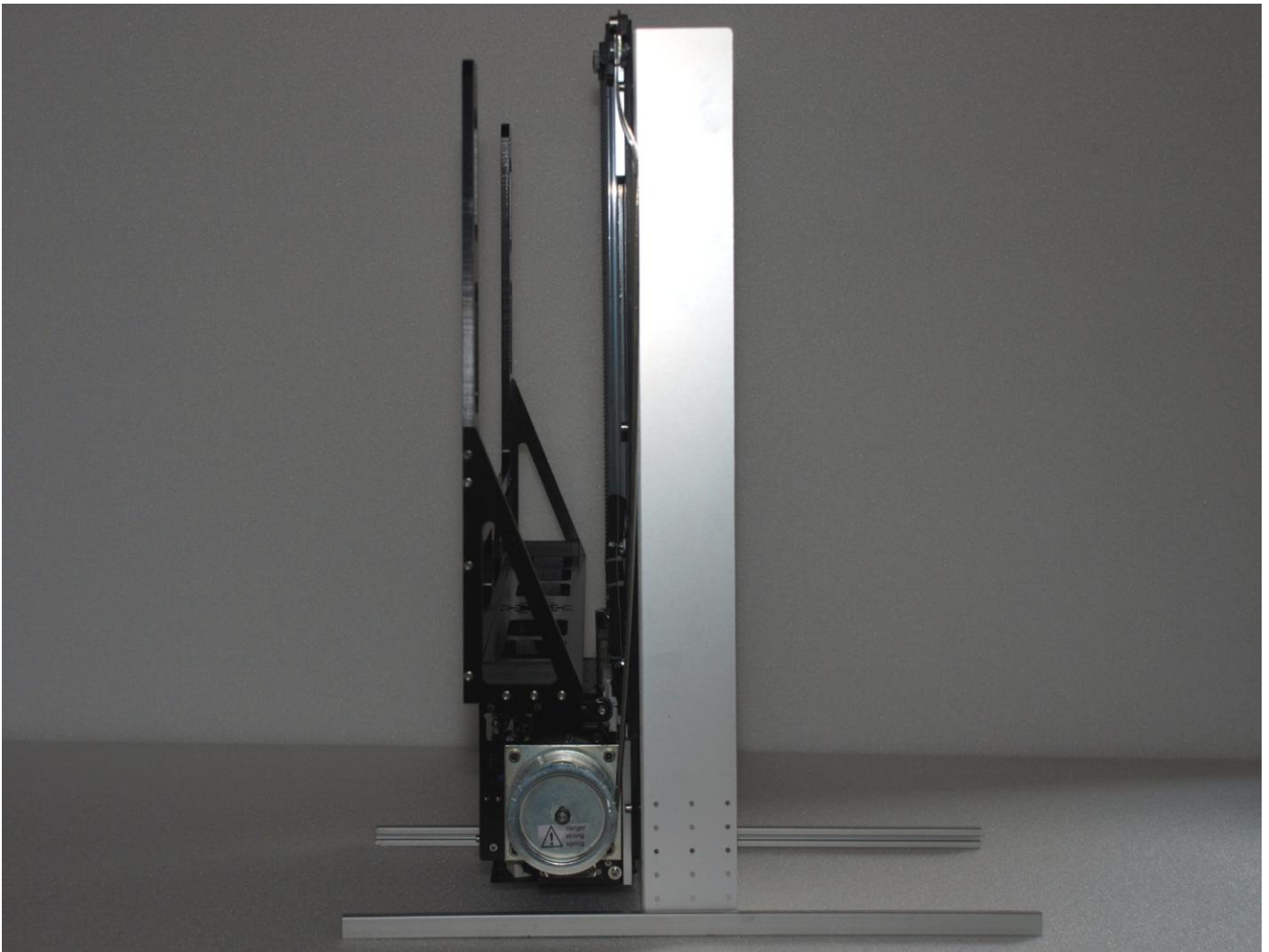
R&R MONITOR LIFT ML103-01

Travel	approx. 560 mm (longer travel on request)
Dimensions	Approx. 365 x 131,5 x 733 mm (without monitor support)
Drawing	DNR21589, DNR21621
Weight	approx. 15.4kg (as shown above), approx. 12kg without bracket
Power supply	Max. 60W, 115V 50-800Hz
Top position	2 x adjustable stop pieces + 2 x micro-switches
Bottom position	2 x adjustable stop pieces + 2 x micro-switches
Monitor support structure	DNR 21422 (weight approx. 3.3kg)
Distance piece	Approx. 20mm 40mm (weight approx. 0.3kg)
options	customized support structures, VESA mount, ...
Carriage weight	approx. 5kg
Weight compensation through spring balancers	2 x 138N L#16297 2 x 103N L#16295 2 x 80N L#16293
Overall weight as shown above	Approx. 15,4kg
Deployed position	2 x adjustable spring roller catches
Stowed position	2 x electromechanical spring locks with micro-switches manual release
customs tariff:	84289090



ML103-01 front view deployed
Pivot

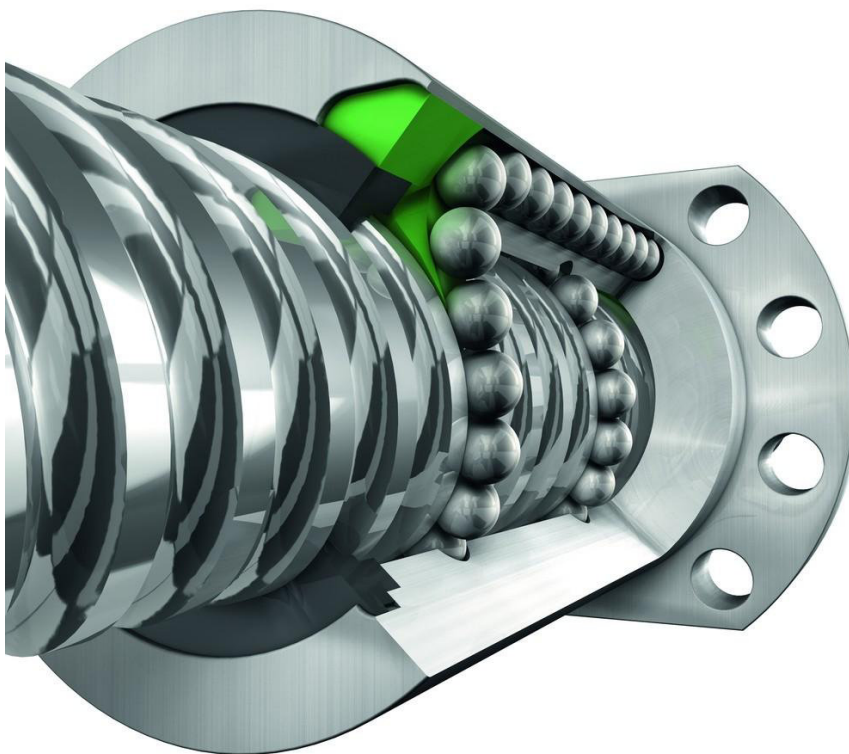
Slewing range +/- 156 degree
Self aligning home position with micro-switch indicator and
adjustable spring roller catch



ML103-01 side view, stowed

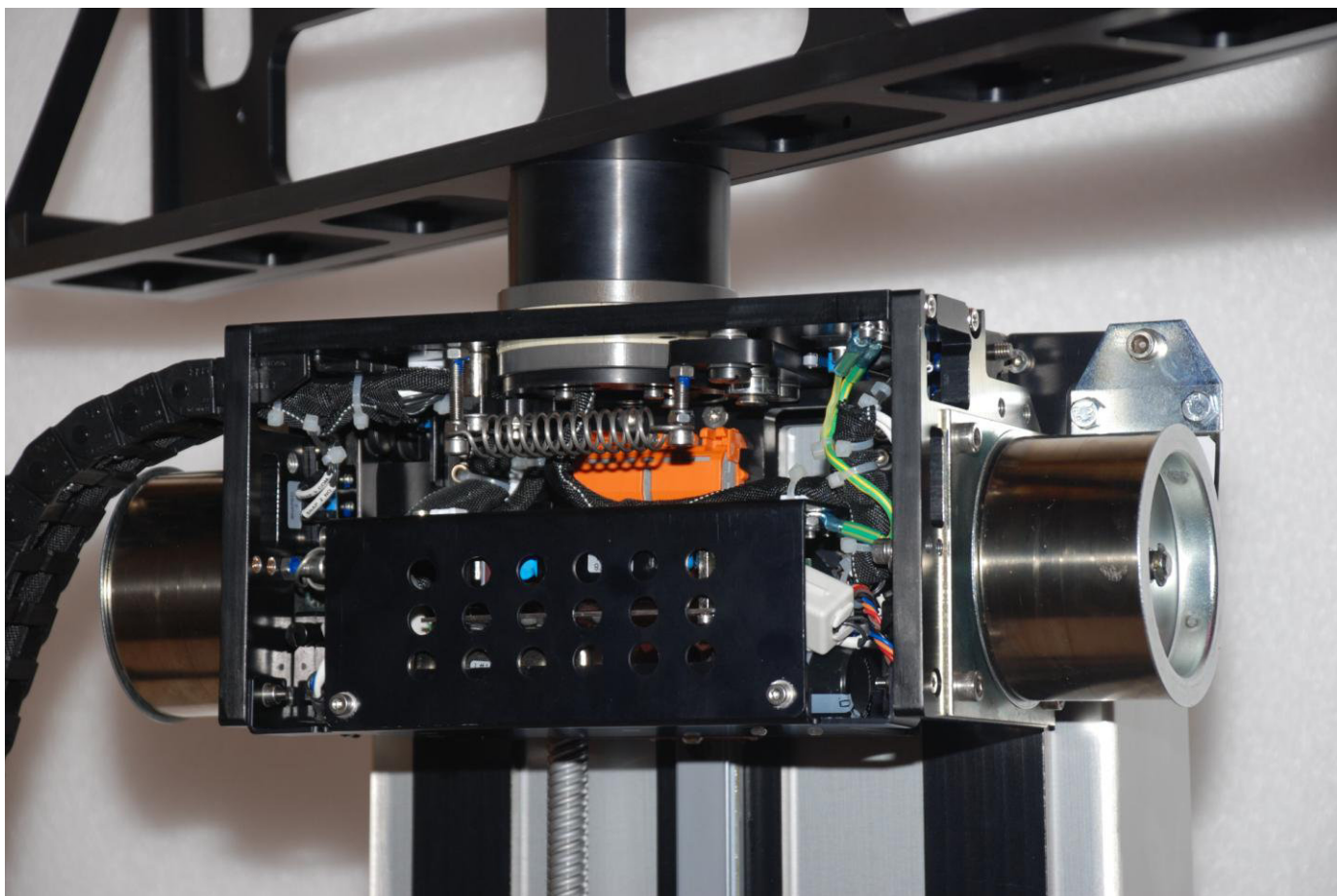
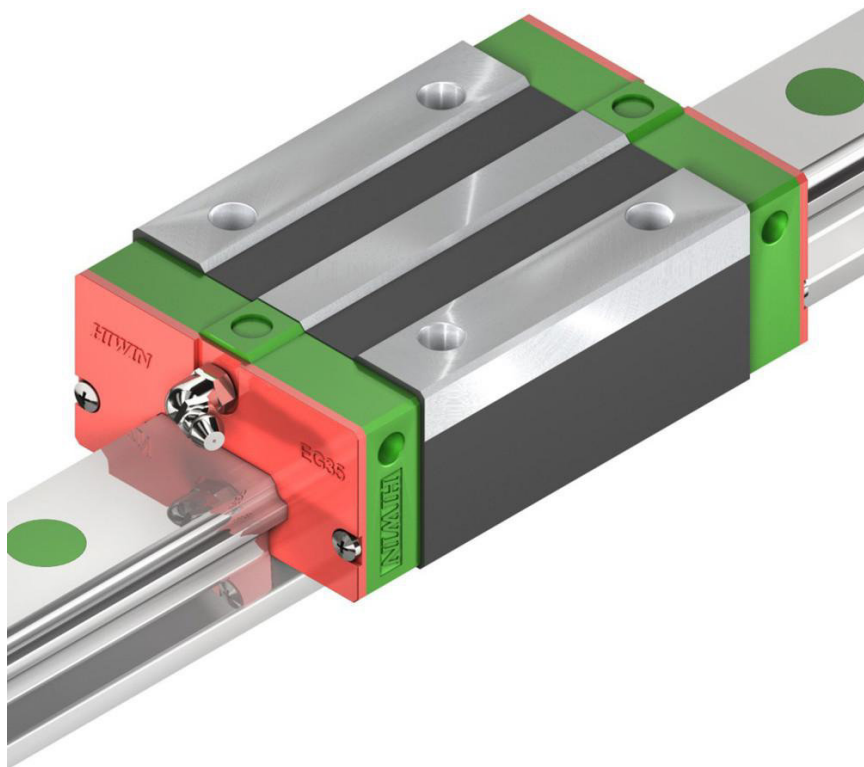
Noise level in use at max. speed 1m distance
approx 62 dB-A (distance >1m) (full speed, load approx. 20kg)
The noise level depends on the mounting, speed, load and the cabinet!
Locking noises might be higher

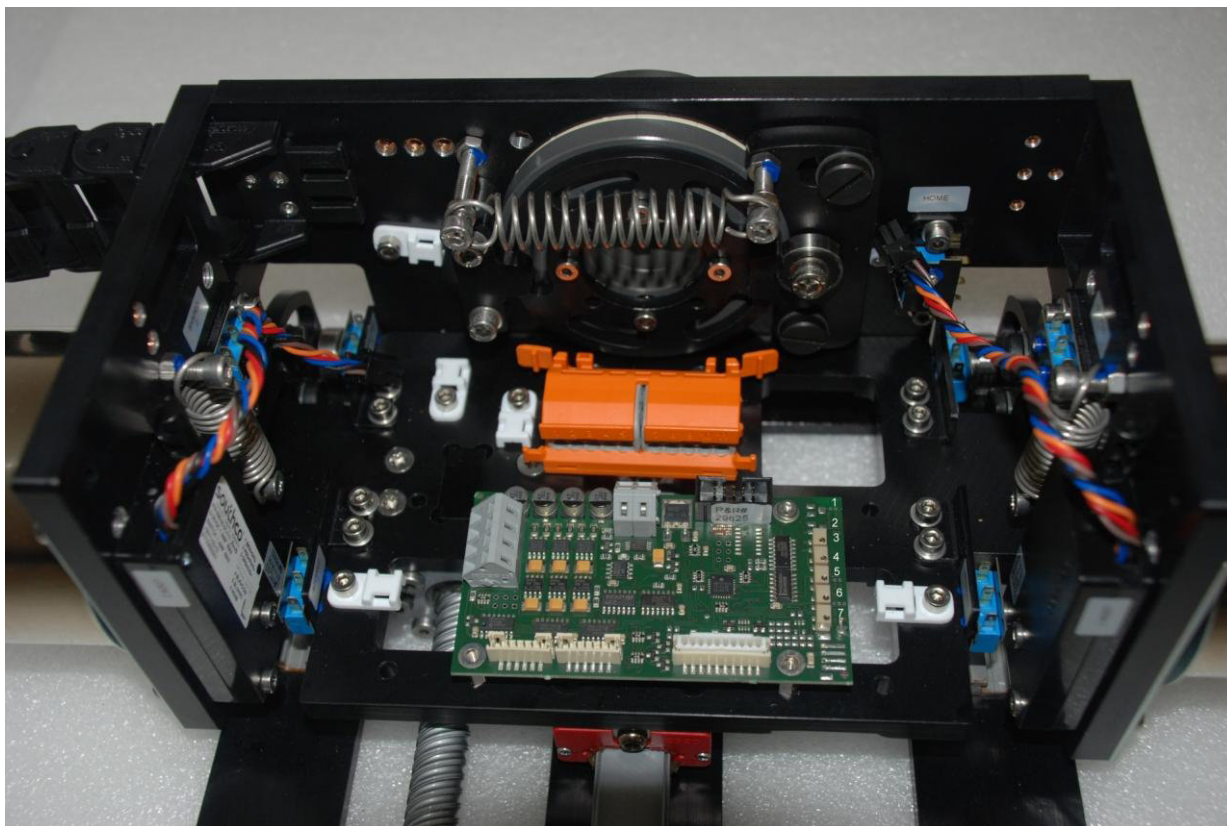
ball screw drive for a smooth
travel
16mm diameter,
16 mm pitch,
corrosion protection: hicoat-2
lifetime lubrication



Linear guide way

- 1 x stiff linear guide ways
- 2 x short carriage SA
- carriage distance selectable
- corrosion protection: Hicoat-2
- lifetime lubrication

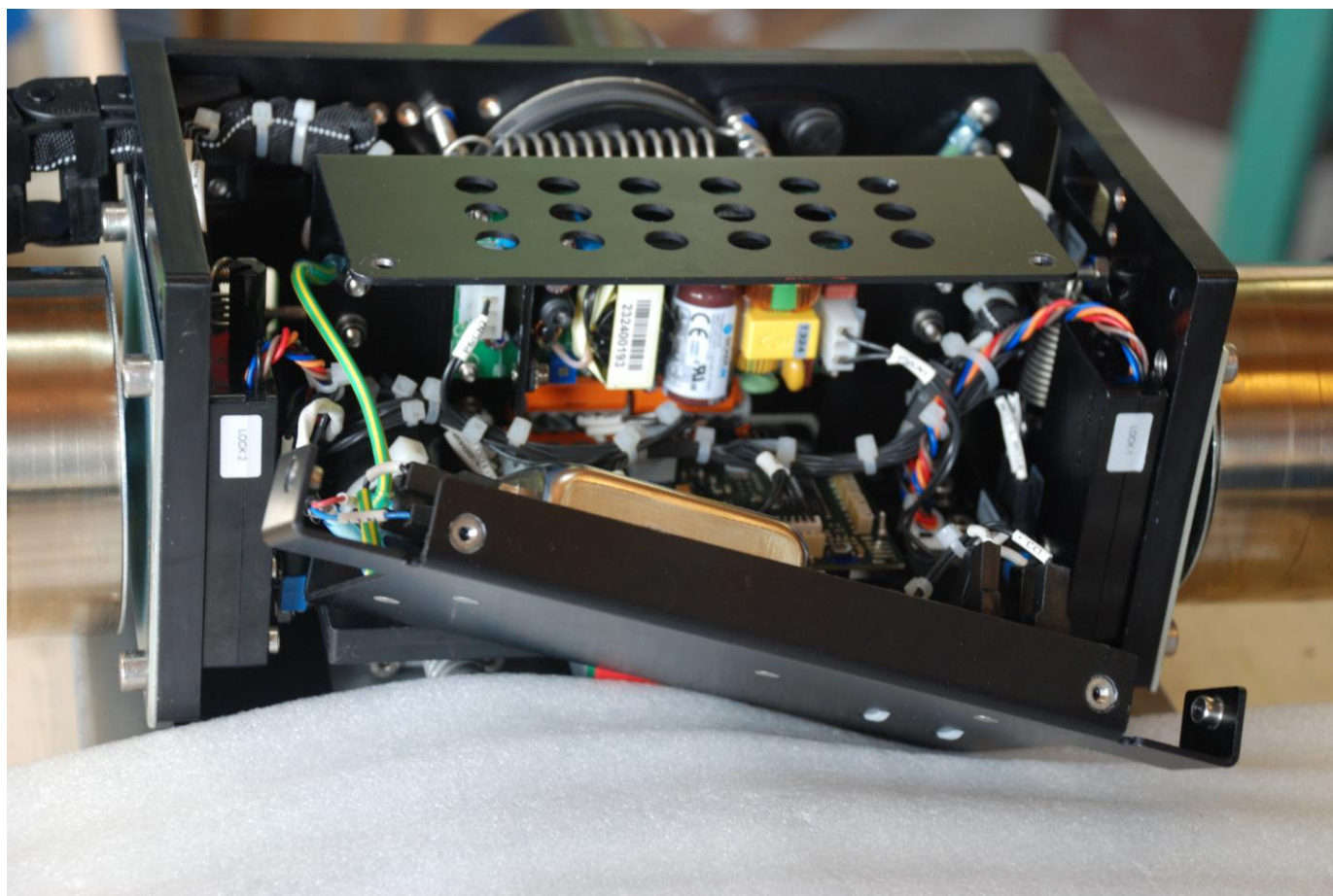


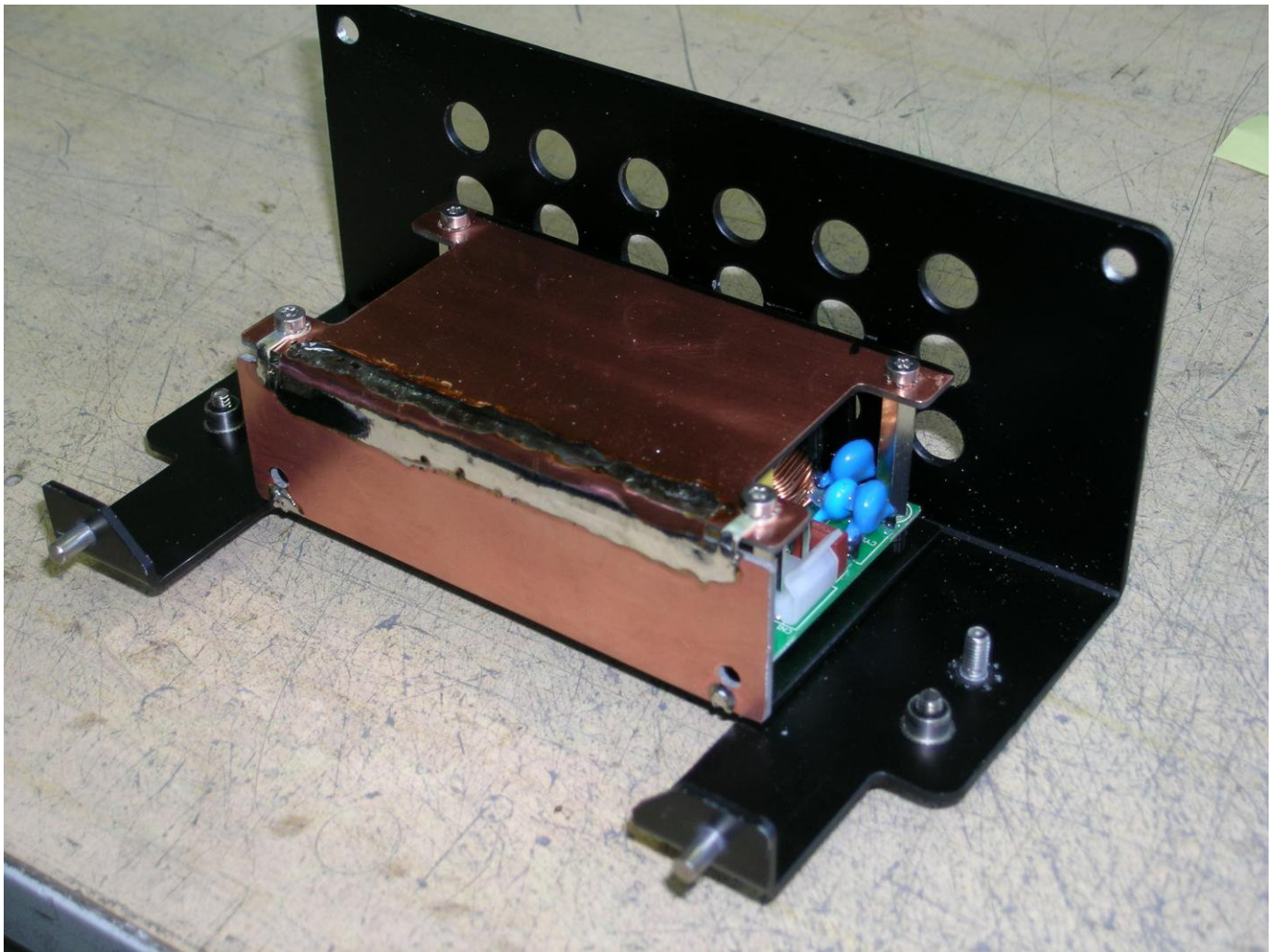


motor controller

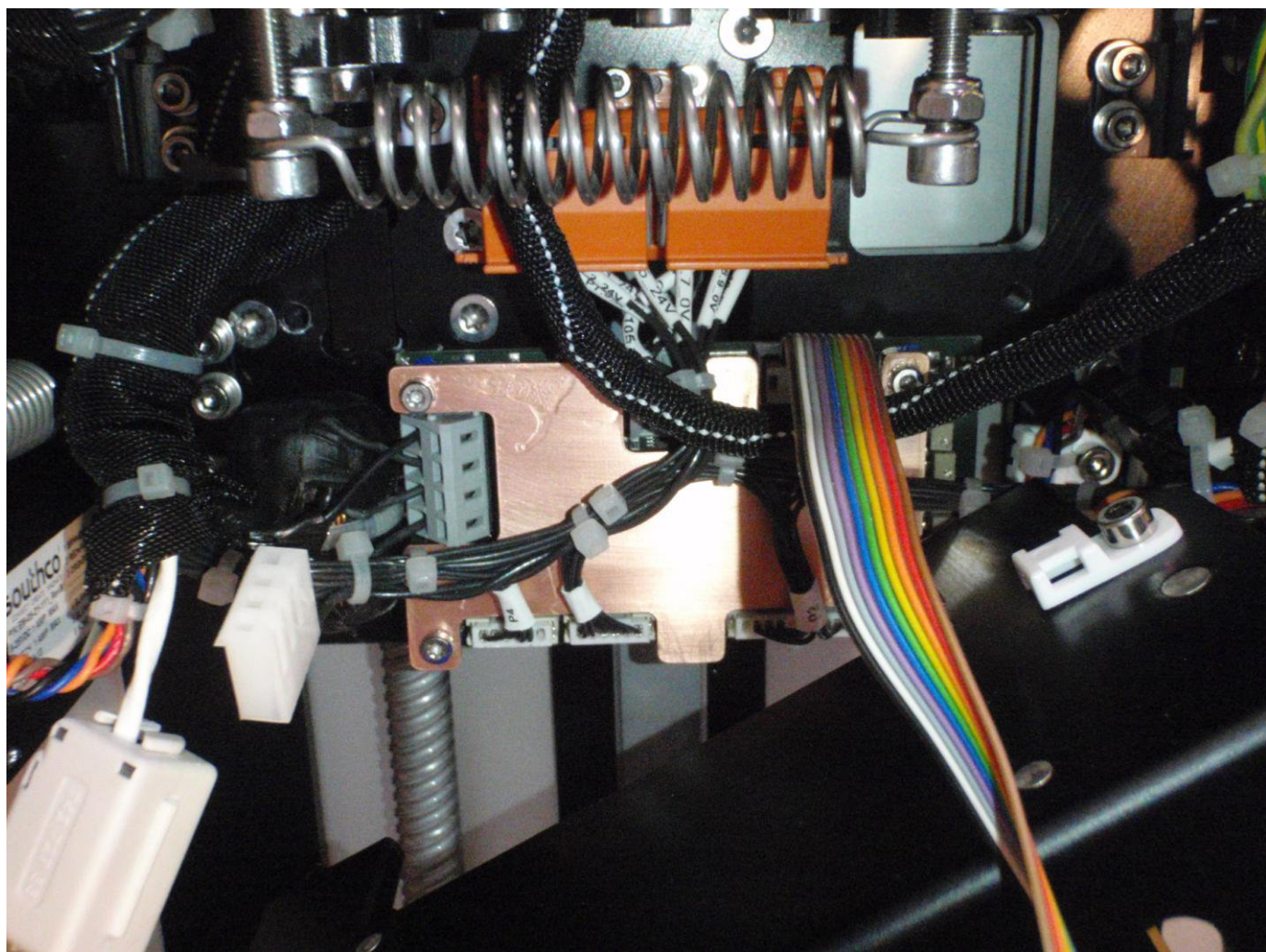
RR-P-545 see datasheet DNR20748
 adjustable over-current shutdown running up
 adjustable over-current shutdown running down
 adjustable motor speed
 one key operation
 optional 2 key operation (depends on the program)

Foto	Poti	value
1	Bottom-End	-
2	Top-End	-
3	Speed up	PWM 0..100%
4	Speed down	PWM 0..100%
5	Current Up	Shut down current 0..6A
6	Current Down	Shut down current 0..6A
7	Delay	0 ... 0.5s



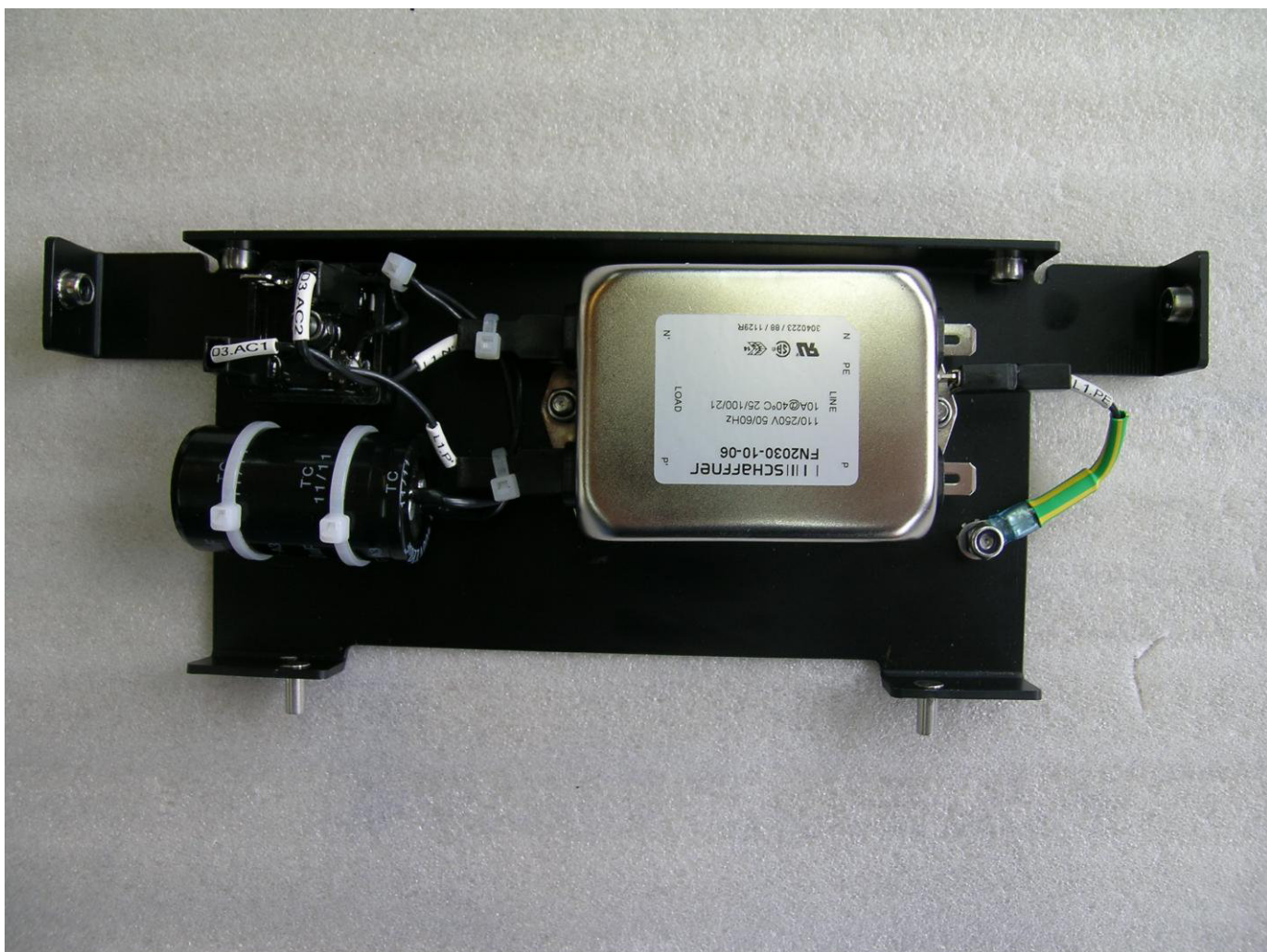


Power supply with shielding

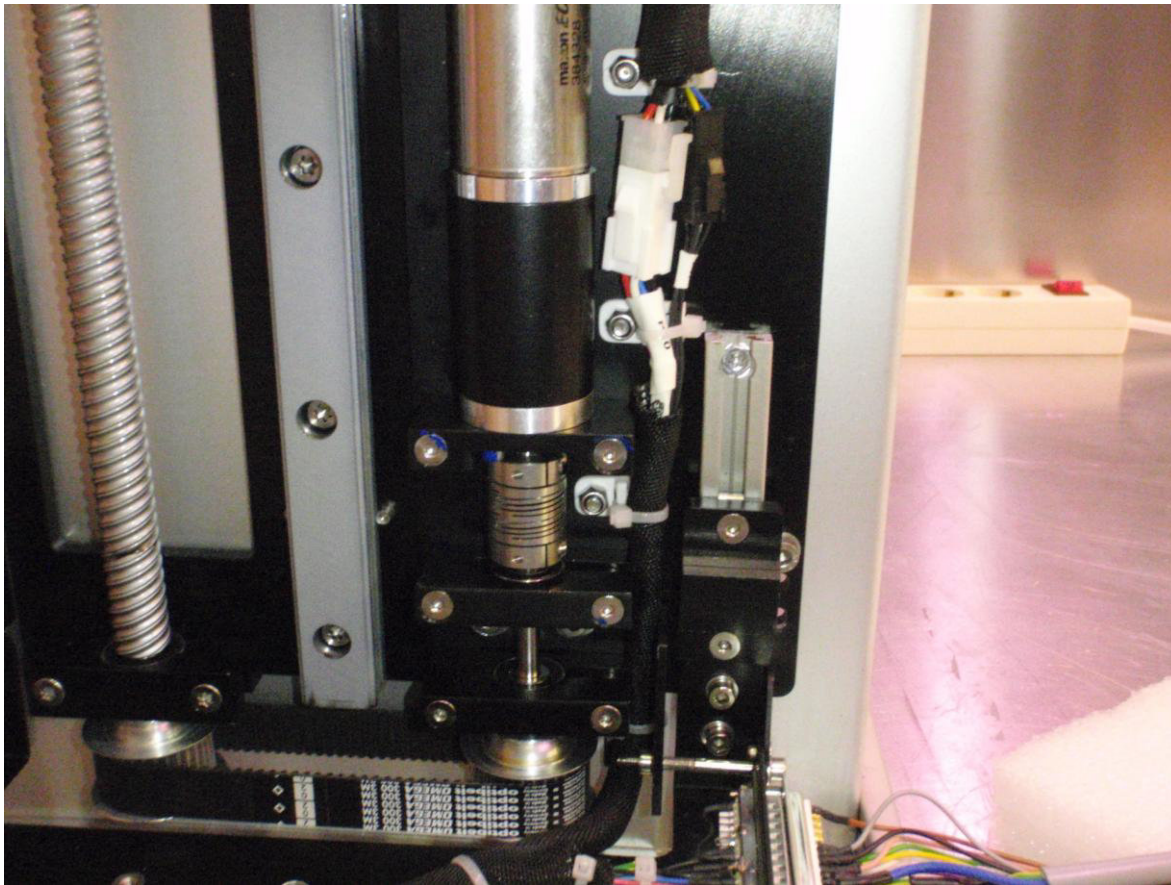


Motor controller RR-P-545

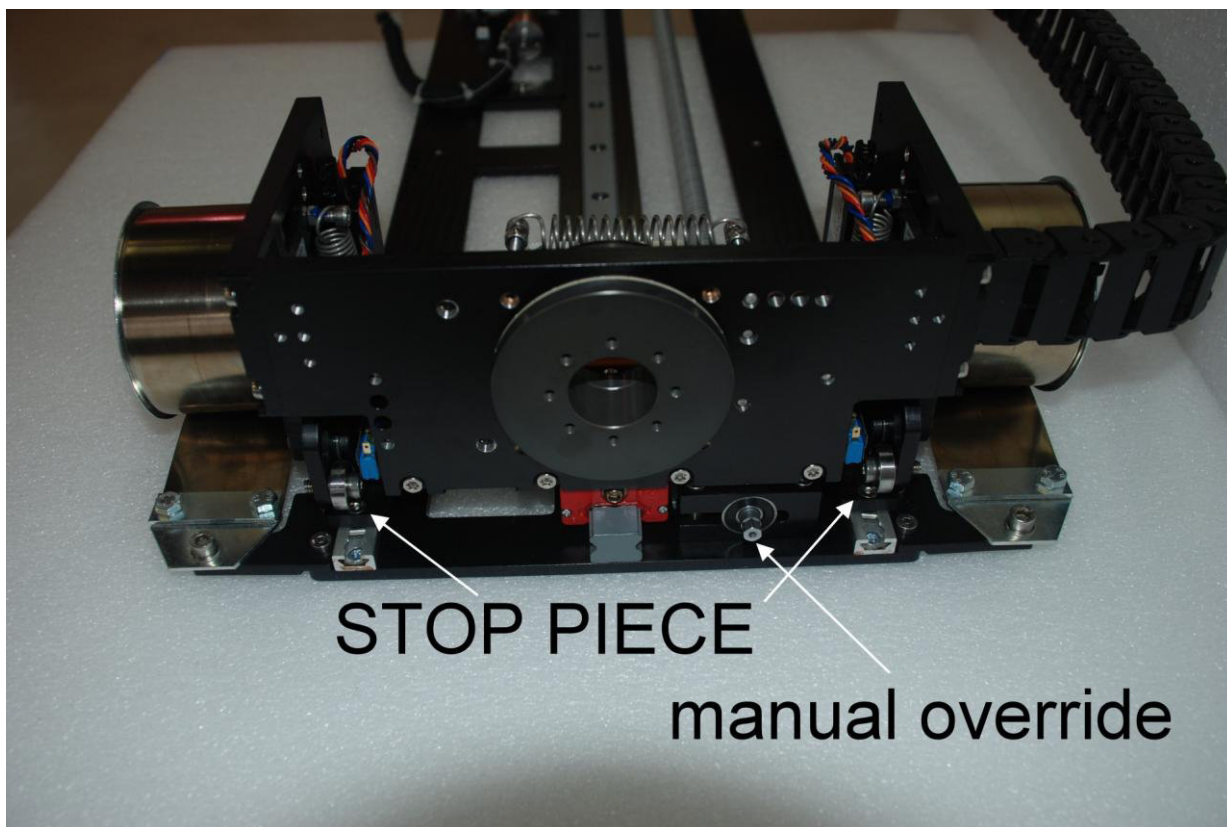
With shielding



ML103-01 inline filter and rectifier



low noise toothed belt drive
low noise planetary geared brushless DC motor 60W

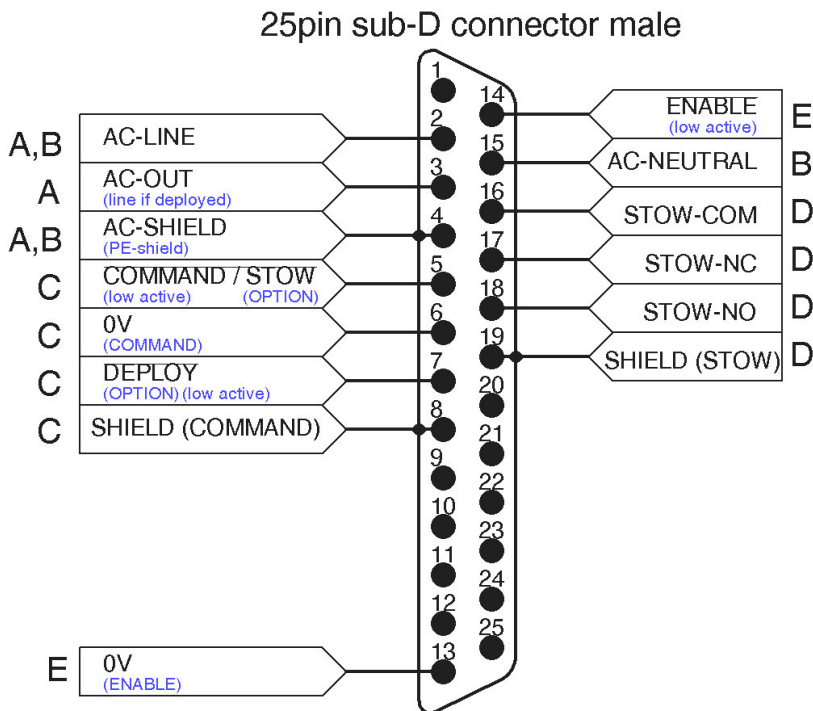


adjustable top position 2x stop pieces
adjustable down position 2 x stop pieces
Keep the stop pieces on the same level!

Manual override

Wrench size 7

lift Interface: 25 pin sub-D male
Pin assignment



- A: monitor power supply
PIN 2 AC-Input, PIN 3 AC output to the monitor
- B: lift power supply,
60W, 115V 50-800Hz
- C: lift control
Connect PIN 5 and PIN 6 to a push button
Toggle function, start, stop, with direction change
- D: stowed indicator
- E: ENABLE
Connect PIN 13 to PIN 14 to enable the system

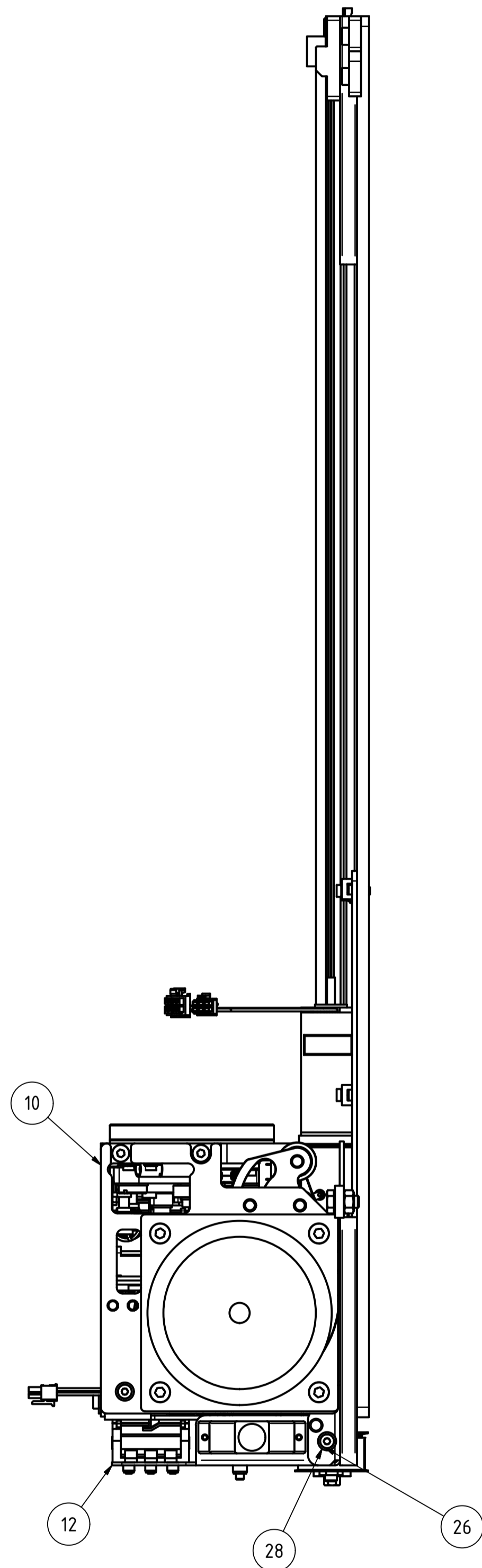
Software - Single button -		
Button	Lift status	function
COMMAND	deployed	run down
	running up or down	stop
	stowed	run up
	inbetween	Run up or down Always in the opposite direction of the last action.
	powering up	Enter test run Release the button as soon as the lift is running.
	test run	stop

Approx. 25s per cycle

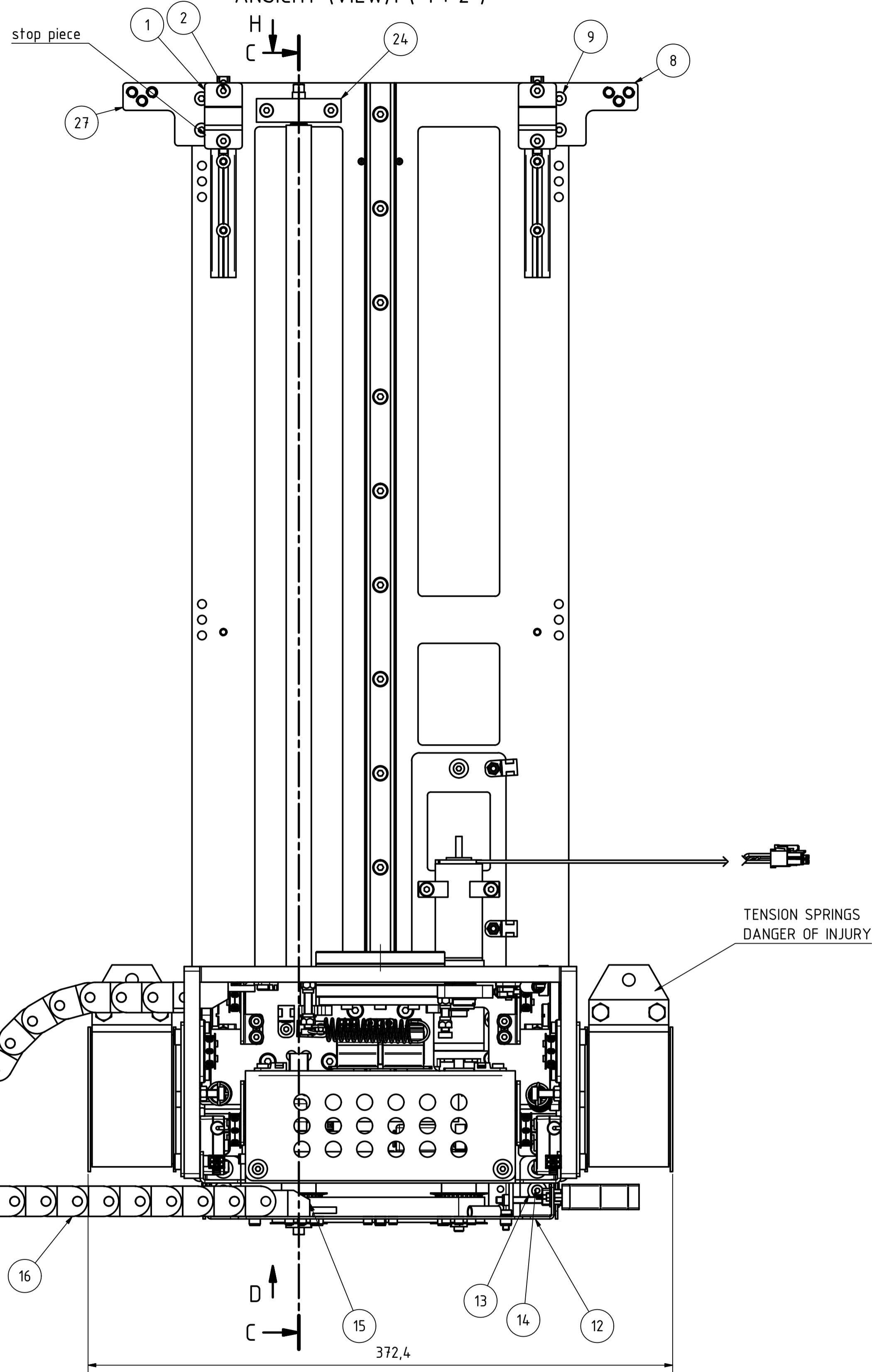
Option: two button software

REV.	DESCRIPTION	DATE	PAGES	NAME
01	First Release	06.10.2104	ALL	P. Seewang

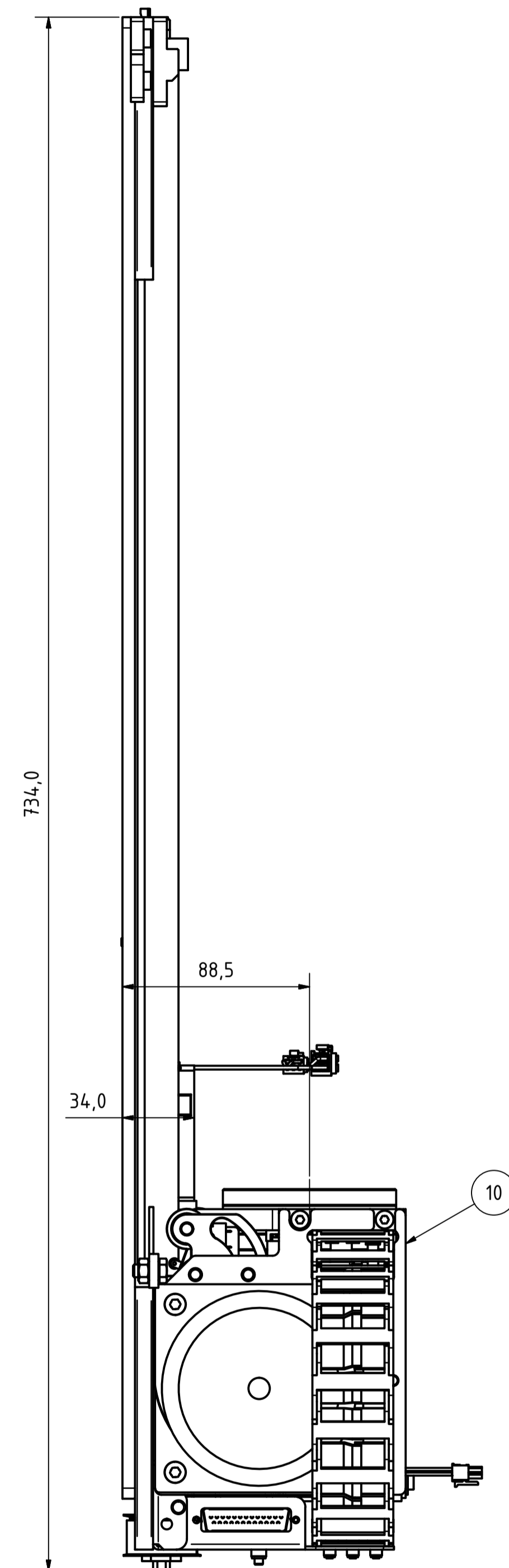
ANSICHT (VIEW)3 (1 : 2)



ANSICHT (VIEW)1 (1 : 2)



ANSICHT (VIEW)2 (1 : 2)

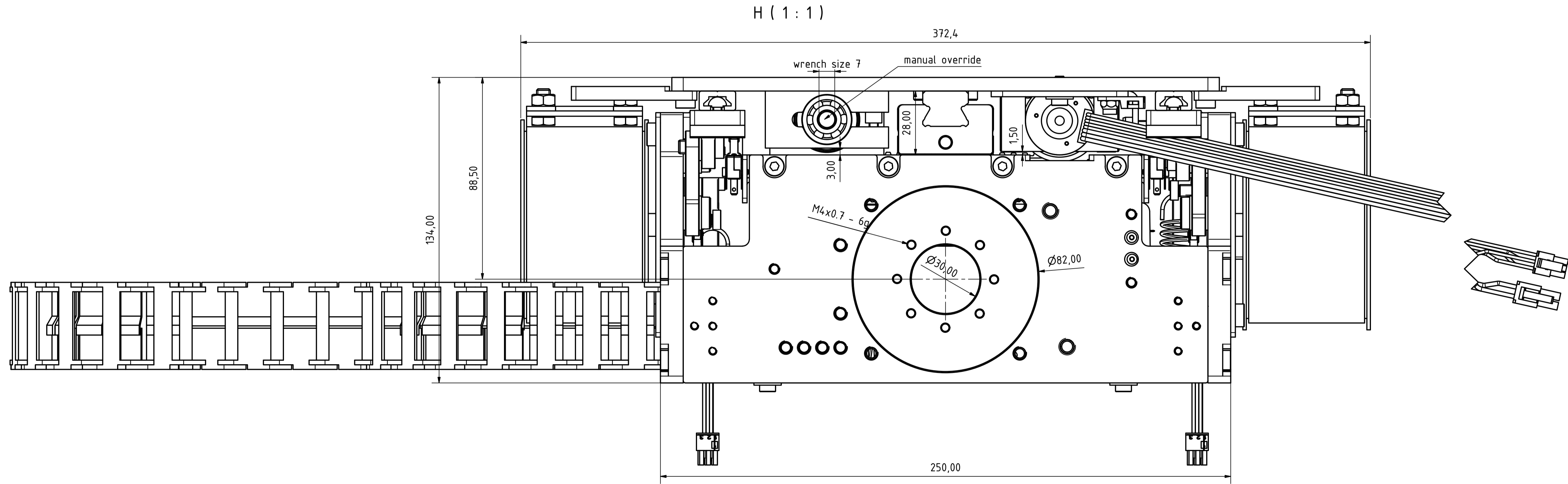
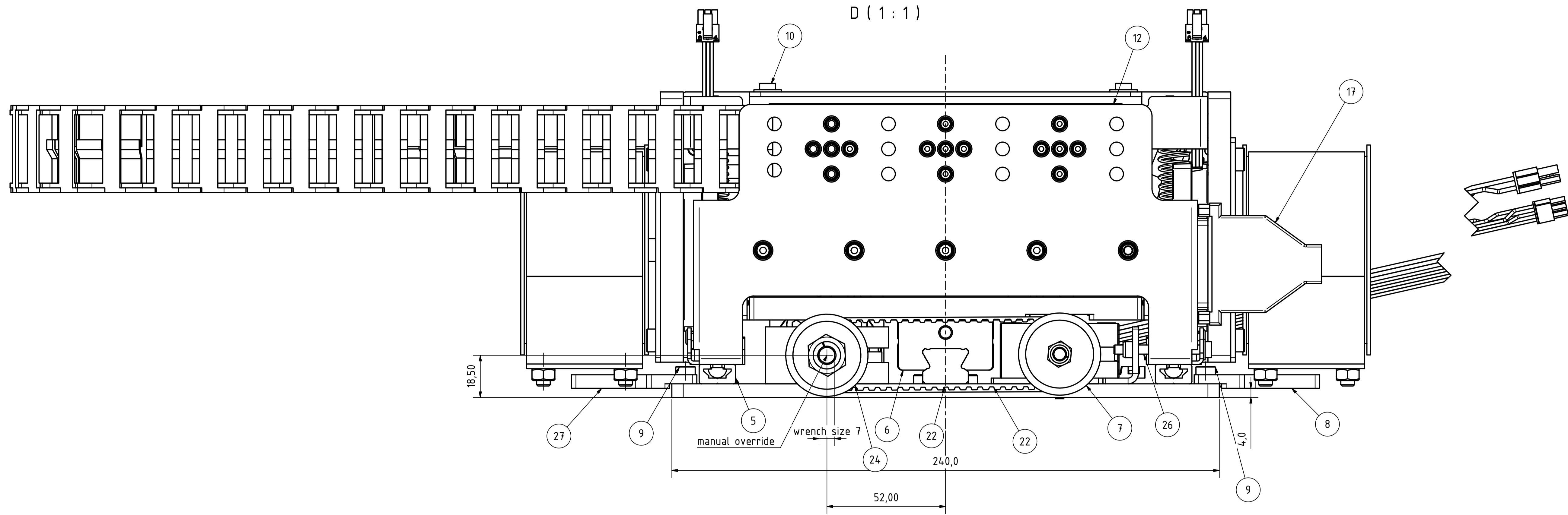


weight 10kg
 travel mechanical: 565mm
 travel nominal: 545
 default stowed position at 10
 default deployed position at 555mm

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Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m	mm
DATE	DATE	NAME	
27.06.2014	15.09.2014	ps	ML103-01 Baugruppe (ML103-01 assembly)
DNR21589		1 / 8	
A1			

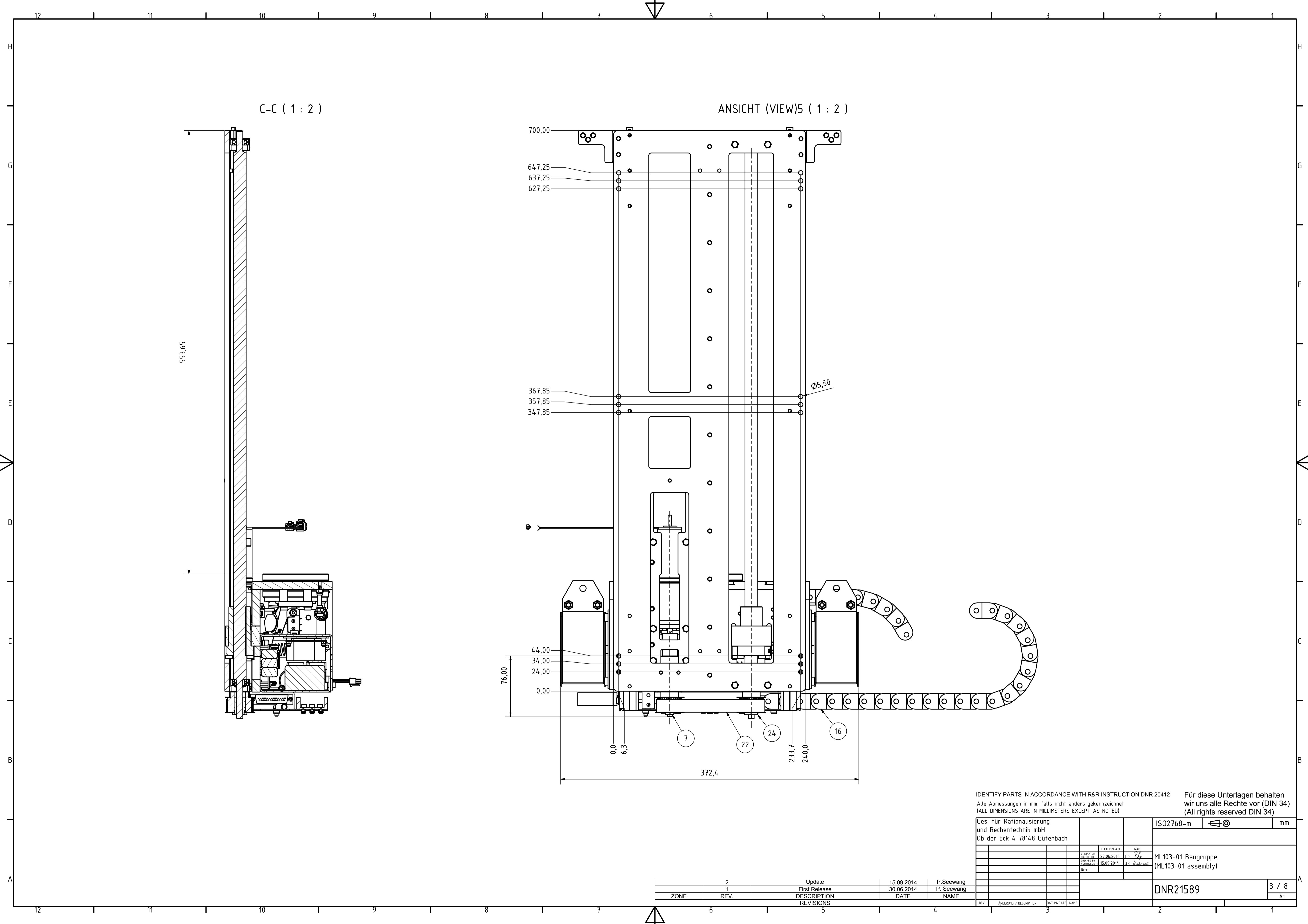
REV.	ÄNDERUNG / DESCRIPTION	DATE	NAME
2	Update	15.09.2014	P.Seewang
1	First Release	30.06.2014	P. Seewang



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Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m		mm
PROJektor	27.06.2014	PS	ML103-01 Baugruppe (ML103-01 assembly)	
Gezeichnet	15.09.2014	sk	DNR21589	
REV.	ÄNDERUNG / DESCRIPTION	DATE	NAME	2 / 8 A1

2	Update	15.09.2014	P. Seewang
1	First Release	30.06.2014	P. Seewang
ZONE	REV.	DESCRIPTION	REVISIONS

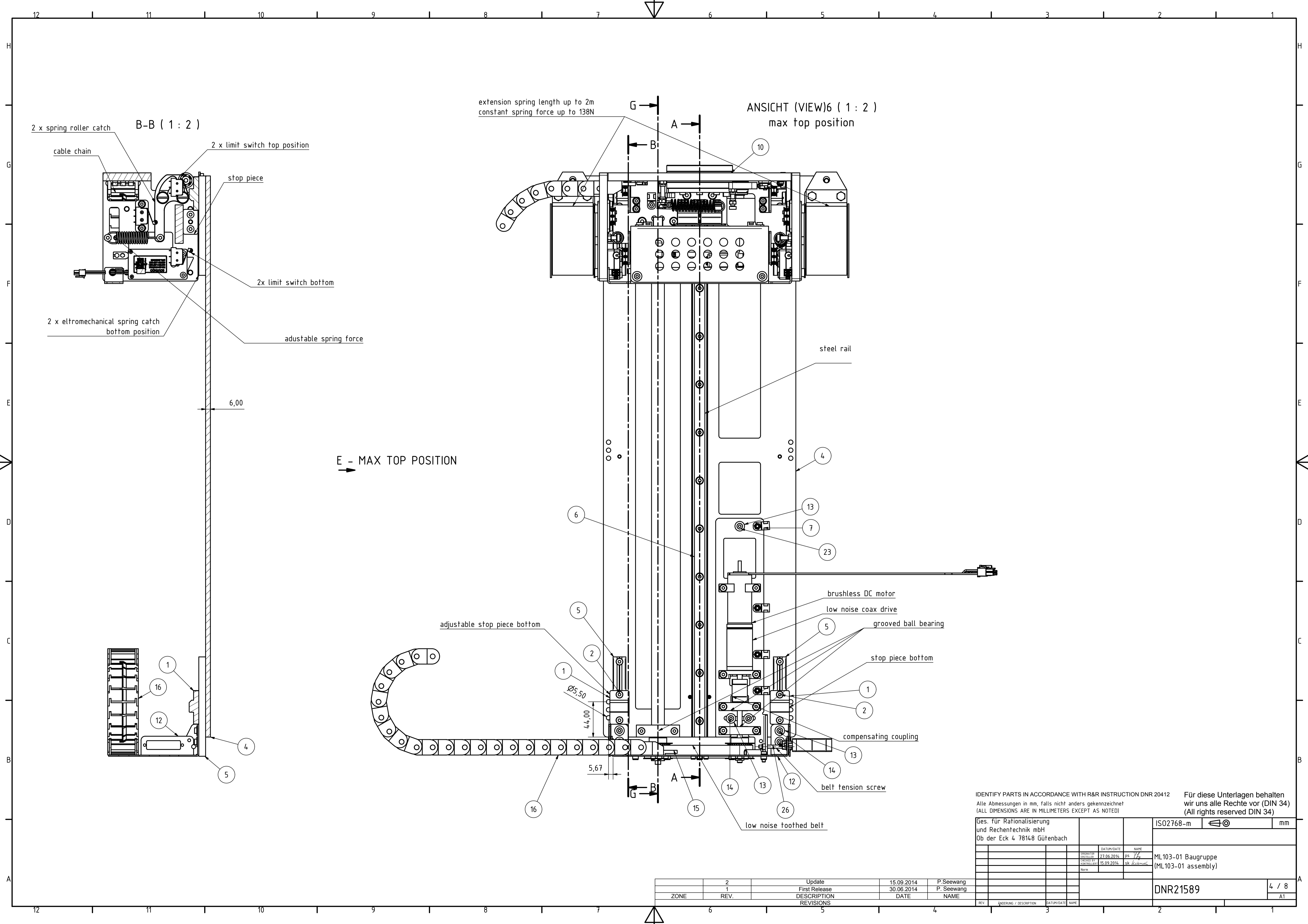


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Ges. für Rationalisierung und Rechentchnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m	mm
PROJektor	27.06.2014	ds	ML103-01 Baugruppe (ML103-01 assembly)
Gezeichnet	15.09.2014	sk	
DNR21589		3 / 8	

ZONE	REV.	DESCRIPTION	DATE	NAME
	2	Update	15.09.2014	P. Seewang
	1	First Release	30.06.2014	P. Seewang

REV.	ÄNDERUNG / DESCRIPTION	DATUM/DATE	NAME



extension spring length up to 2m
constant spring force up to 138N

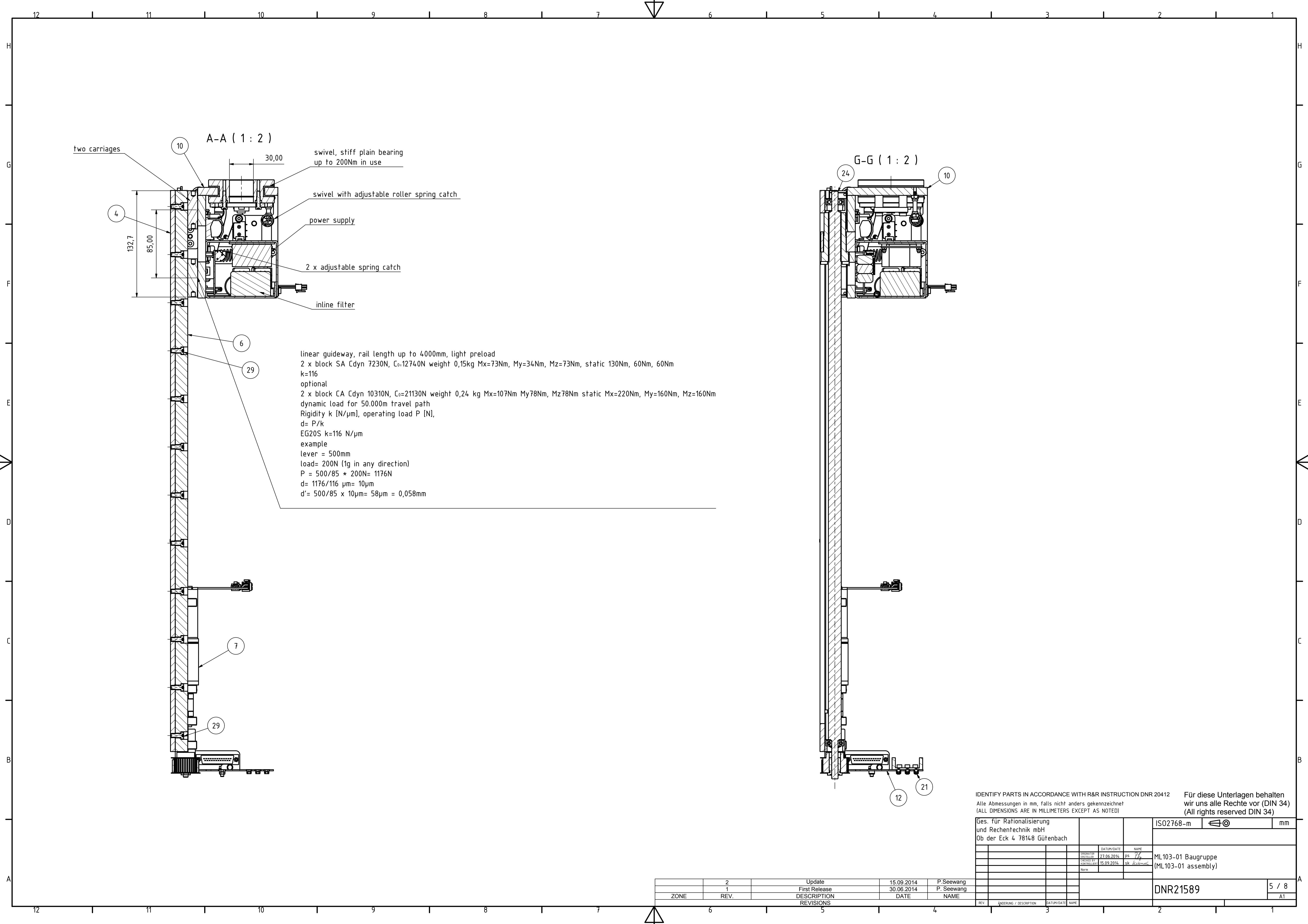
ANSICHT (VIEW)6 (1 : 2)
max top position

E - MAX TOP POSITION

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Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m		mm	
DATE	DATE	DATE	DATE	DATE	DATE
15.09.2014	30.06.2014	15.09.2014	30.06.2014	15.09.2014	30.06.2014
ML103-01 Baugruppe (ML103-01 assembly)		DNR21589		4 / 8	
A1					

ZONE	REV.	DESCRIPTION REVISIONS	DATE	NAME
	2	Update	15.09.2014	P. Seewang
	1	First Release	30.06.2014	P. Seewang



two carriages

10

A-A (1 : 2)

30,00

swivel, stiff plain bearing up to 200Nm in use

swivel with adjustable roller spring catch

power supply

2 x adjustable spring catch

inline filter

4

132,7

85,00

6

29

linear guideway, rail length up to 4000mm, light preload
 2 x block SA Cdyn 7230N, C₀=1274.0N weight 0,15kg Mx=73Nm, My=34Nm, Mz=73Nm, static 130Nm, 60Nm, 60Nm
 k=116
 optional
 2 x block CA Cdyn 10310N, C₀=21130N weight 0,24 kg Mx=107Nm My78Nm, Mz78Nm static Mx=220Nm, My=160Nm, Mz=160Nm
 dynamic load for 50.000m travel path
 Rigidity k [N/μm], operating load P [N],
 d= P/k
 EG20S k=116 N/μm
 example
 lever = 500mm
 load= 200N (fg in any direction)
 P = 500/85 * 200N= 1176N
 d= 1176/116 μm= 10μm
 d'= 500/85 x 10μm= 58μm = 0,058mm

G-G (1 : 2)

24

10

12

21

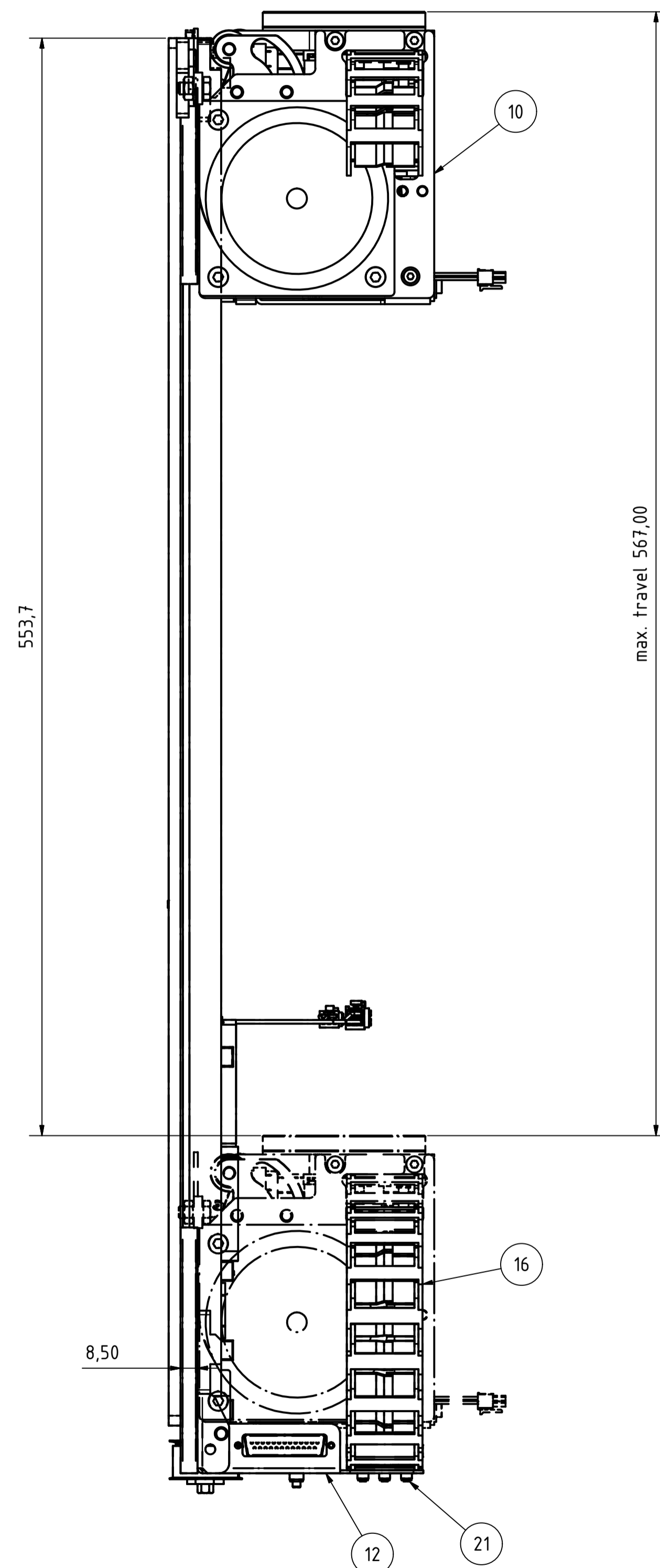
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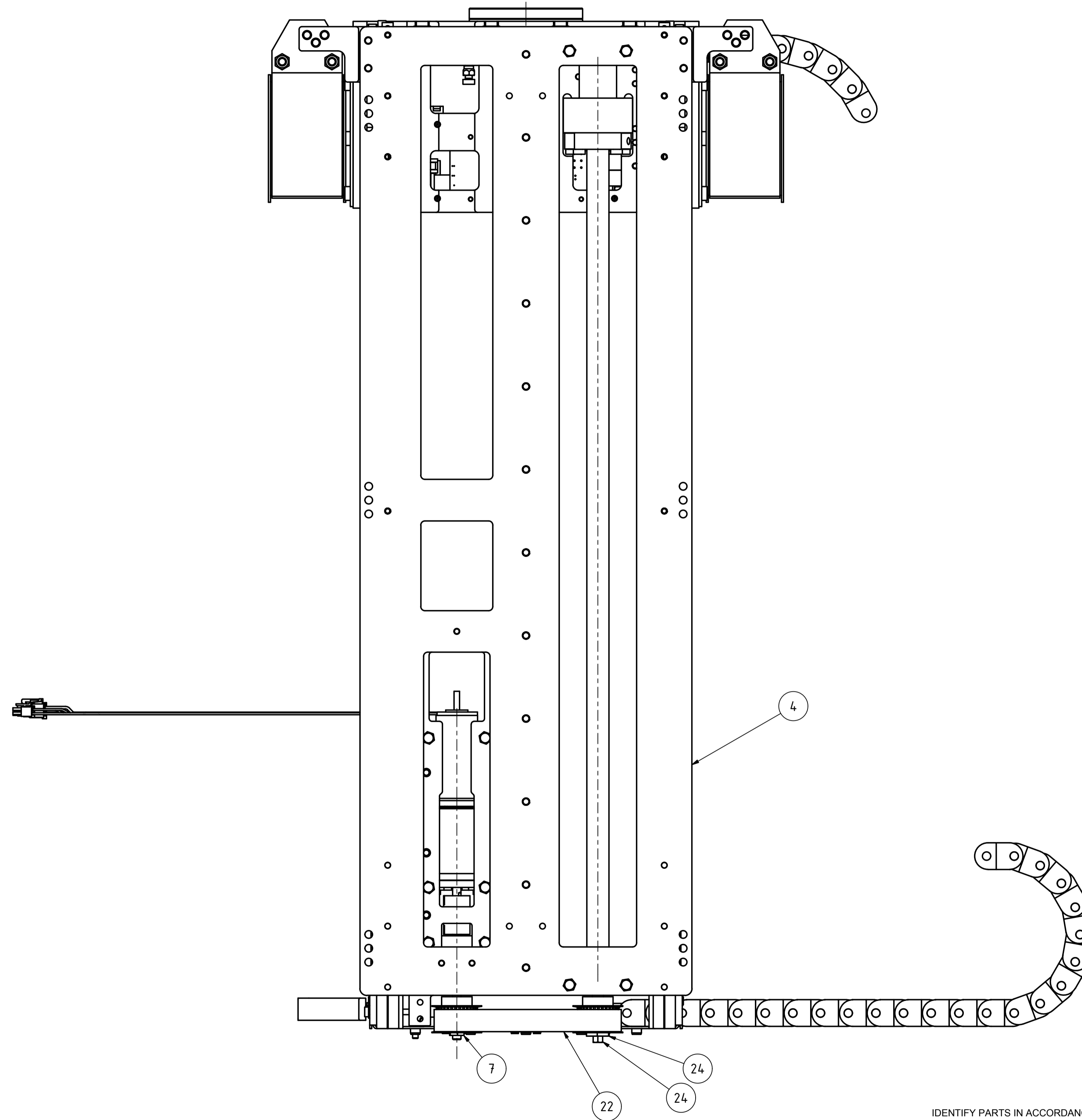
Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m		mm
DATE	DATE	DATE	DATE	DATE
15.09.2014	30.06.2014	15.09.2014	30.06.2014	15.09.2014
None	None	None	None	None
ML103-01 Baugruppe (ML103-01 assembly)			DNR21589	
			5 / 8	
			A1	

REV.	ÄNDERUNG / DESCRIPTION	DATE	NAME
2	Update	15.09.2014	P. Seewang
1	First Release	30.06.2014	P. Seewang

E - MAX TOP POSITION (1 : 2)



F (1 : 2) MAX TOP POSITION

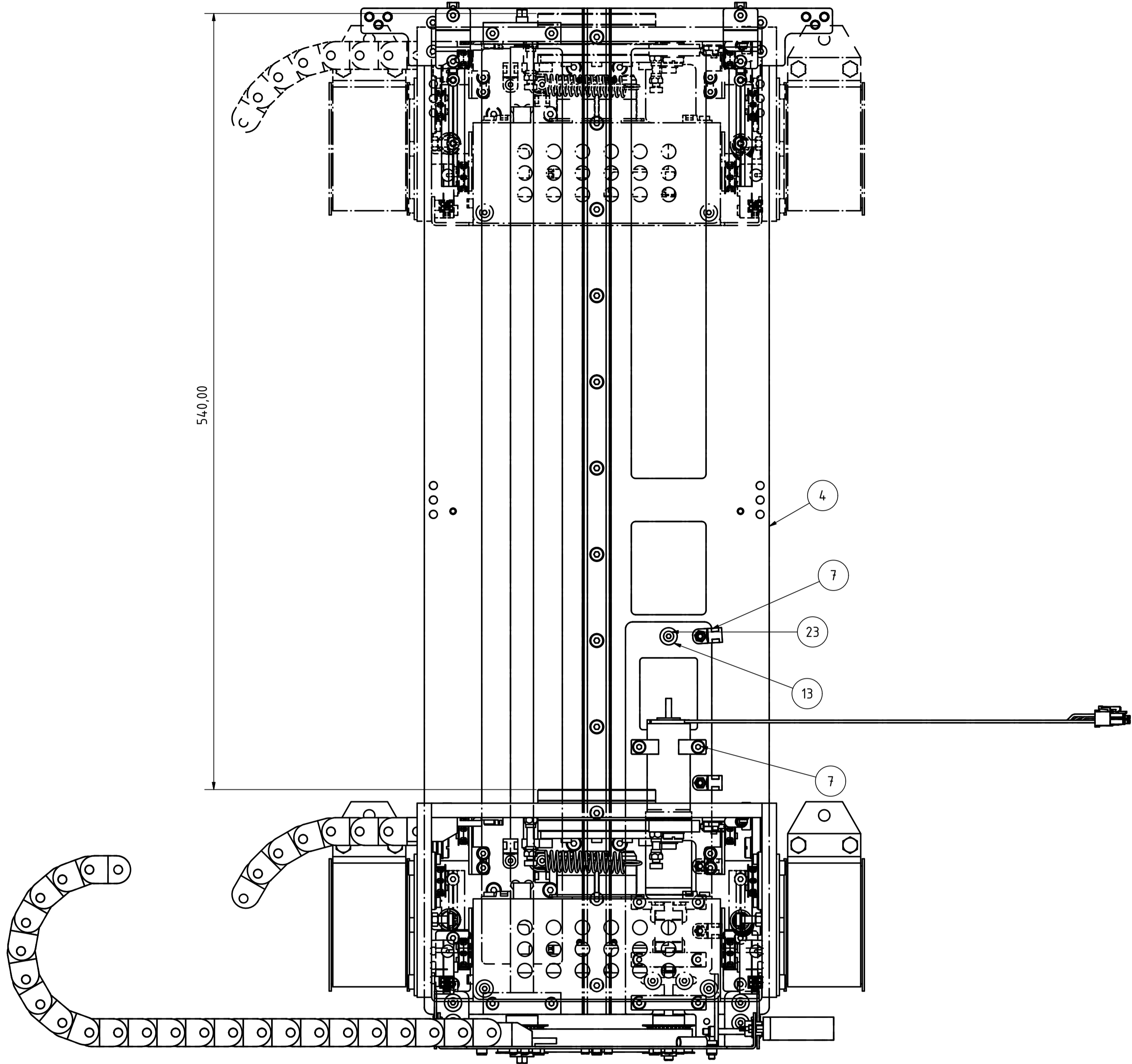


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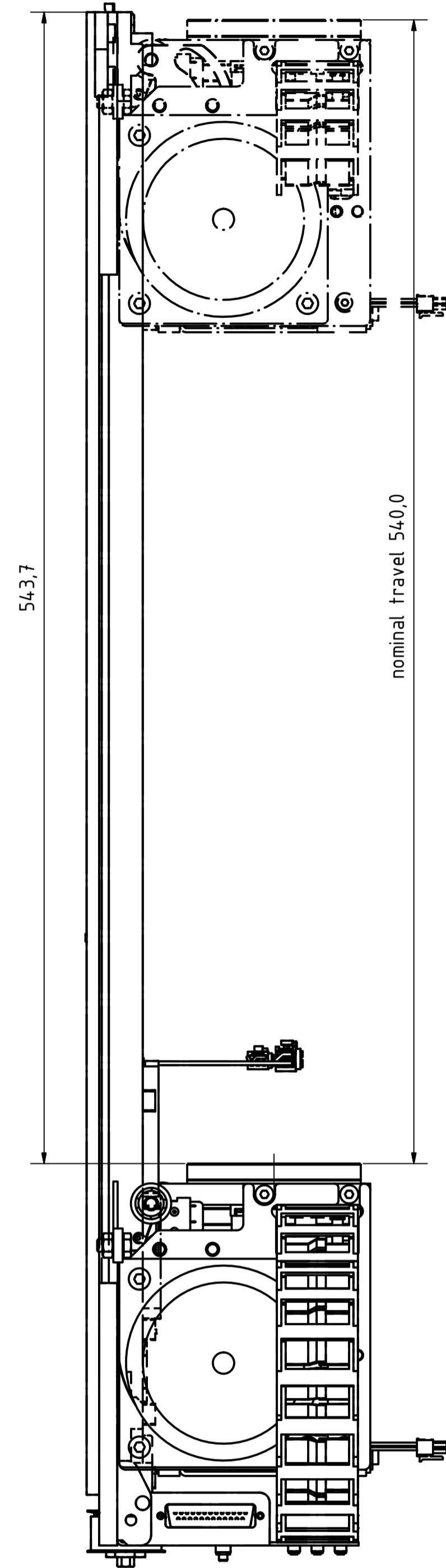
Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m	mm
DATE	DATE	NAME	
27.06.2014	15.09.2014	ps	ML103-01 Baugruppe (ML103-01 assembly)
DNR21589		6 / 8	
A1			

ZONE	REV.	DESCRIPTION	DATE	NAME
	2	Update	15.09.2014	P. Seewang
	1	First Release	30.06.2014	P. Seewang
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ANSICHT (VIEW)9 (1 : 2)



ANSICHT (VIEW)10 (1 : 2)



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Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m	mm
PROJektor	27.06.2014	PS	ML103-01 Baugruppe (ML103-01 assembly)
Gezeichnet	15.09.2014	sk	

2	Update	15.09.2014	P. Seewang	DNR21589	7 / 8
1	First Release	30.06.2014	P. Seewang		
ZONE	REV.	DESCRIPTION	DATE	NAME	A1

TEILELISTE (PARTLIST)									
OBJEKT	BAUTEIL(PART)	BESCHREIBUNG	DESCRIPTION	MATERIAL	MASSE (weight)	ANZAHL (QUANTITY)	LANR (PARTNUMBER)	NAME	REMARK
1	DNR21531	ML102 Raststück	ML102 stop piece	Aluminium - 5083 AlMg4,5Mn0,7	0,022 kg	4	16336		
2	NF E 25-107 - M4 x 12	Schrauben, Senkkopf Torx, Produktklasse A, Symbol FX	COUNTERSUNK HEAD TORX SCREW M4 x 12	Stahl, weich	0,001 kg	8	11288		
3	Zahnriemen_HTD-3M-15_z75	Zahnriemen_HTD-3M-15_z75	toothed belt HTD-3M-15_z75	Generisch	0,000 kg	1	16373		
4	DNR21590	ML103 Montageplatte	ML103 mounting panel		1,664 kg	1	16459		
5	DNR21594	ML103 Baugruppe Profil-Schiene	ML103 assembly rail		0,035 kg	4	16524		
6	DNR21596-02	Profilschiene EGH20SA-2-R700-Z0-H-CZS Baugruppe 2x Laufwagen	slide EGH20SA-2-R700-Z0-H-CZS assembly		2,003 kg	1	16420		
7	DNR21602	ML103 Baugruppe Getriebemotor	ML103 assembly geared motor unit		0,537 kg	1	16519		
8	DNR21603	ML103 Halterung Zugfeder rechts schwarz	ML103 extension spring bracket right black		0,021 kg	1	16502		
9	Zylinderschraube I-6rund NF E 25-111 - M5x10 Festigkeitsklasse 4.8 A2	Zylinderkopf Sechslappiger Senkkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M5x10 Festigkeitsklasse 4.8 A2	Edelstahl	0,003 kg	4	11353		
10	DNR21679	ML103-01 Baugruppe Wagen	ML103-01 assembly carriage		4,427 kg	1	16520		
11	dnr11777	Nutenstein Mini M4	slot nut M4-Mini		0,002 kg	4	6748		
12	DNR21610	ML103 Kabelblech	ML103 cable bracket		0,110 kg	1	16454		
13	DIN 9021 - 4,3 A2	Unterlegscheibe	Washer DIN 9021 - 4,3 A2	Edelstahl	0,001 kg	7	15075		
14	Zylinderschraube I-6rund NF E 25-111 - M4x8 Festigkeitsklasse 4.8 A2	Zylinderkopf Sechslappiger Senkkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M4x8 Festigkeitsklasse 4.8 A2	Edelstahl	0,002 kg	6	11346		
15	Z08_30_028_02	Energiekette 080.030.12P Anschlußelement	cable chain 080.030.12PZ mounting bracket	Generisch	0,006 kg	1	16407		
16	Z08_30_028_03	Energiekette Z08 Breite 30 Radius 028	energy chain Z08 width 30 radius 028	Generisch	0,004 kg	23	16408		
17	DNR21474	Stecker D-SUB 25polig Kabelgehäuse Metall	D-SUB 25 pin cable housing metal	Allgemein	0,024 kg	1	6973		
18	dnr18532	Stecker D-SUB Stifteleiste 25-polig Lötkehl		Allgemein	0,003 kg	1			
19	DSUB-Verschraubung_Bolzen	DSUB Verschraubung Bolzen	D-Sub plug screw	Messing (weiches, gelbes Messing)	0,001 kg	2			
20	DSUB-Verschraubung_Mutter	DSUB Verschraubung Mutter	D-Sub plug nut	Messing (weiches, gelbes Messing)	0,000 kg	2			
21	NF E 25-107 - M3 x 8	Schrauben, Senkkopf Torx, Produktklasse A, Symbol FX	COUNTERSUNK HEAD TORX SCREW M3 x 8	Stahl, weich	0,000 kg	4	11278		
22	Zahnriemen	Zahnriemen 3M-15 Wirklänge 225mm z=75	dented belt 3M-15 length 225mm z=75	Rubber	0,007 kg	1	16373		
23	Zylinderschraube I-6rund NF E 25-111 - M4x10 Festigkeitsklasse 4.8 A2	Zylinderkopf Sechslappiger Senkkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M4x10 Festigkeitsklasse 4.8 A2	Edelstahl	0,002 kg	2	11347		
24	DNR21598	ML103 Baugruppe Kugelgewindtrieb	ML103 assembly ball screw drive		1,455 kg	1	16521		
25	Zylinderschraube I-6rund NF E 25-111 - M5x25 Festigkeitsklasse 4.8 A2	Zylinderkopf Sechslappiger Senkkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M5x25 Festigkeitsklasse 4.8 A2	Edelstahl	0,005 kg	6	11357		
26	Zylinderschraube I-6rund NF E 25-111 - M4x40 Festigkeitsklasse 4.8 A2	Zylinderkopf Sechslappiger Senkkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M4x40 Festigkeitsklasse 4.8 A2	Edelstahl	0,005 kg	1	12520		
27	DNR21740	ML103 Halterung Zugfeder links schwarz	ML103 extension spring bracket left black		0,021 kg	1	16505		
28	DIN 125 - A 4,3	Unterlegscheibe		Stahl, weich	0,000 kg	1	7495		
29	Zylinderschraube I-6rund NF E 25-111 - M5x12 Festigkeitsklasse 4.8 A2	Zylinderkopf Sechslappiger Senkkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M5x12 Festigkeitsklasse 4.8 A2	Edelstahl	0,003 kg	12	11354		
30	DNR21293	Kabelschuh M4 Crimpseal II Ringverbinder AWG16-14	Ring Connector M5 Crimpseal II AWG16-14	Generisch	0,000 kg	1	6115		
31	DIN 6797 - A 4,3	Zahnscheibe	lock washer DIN 6797 - A 4,3	Edelstahl	0,000 kg	1	551		

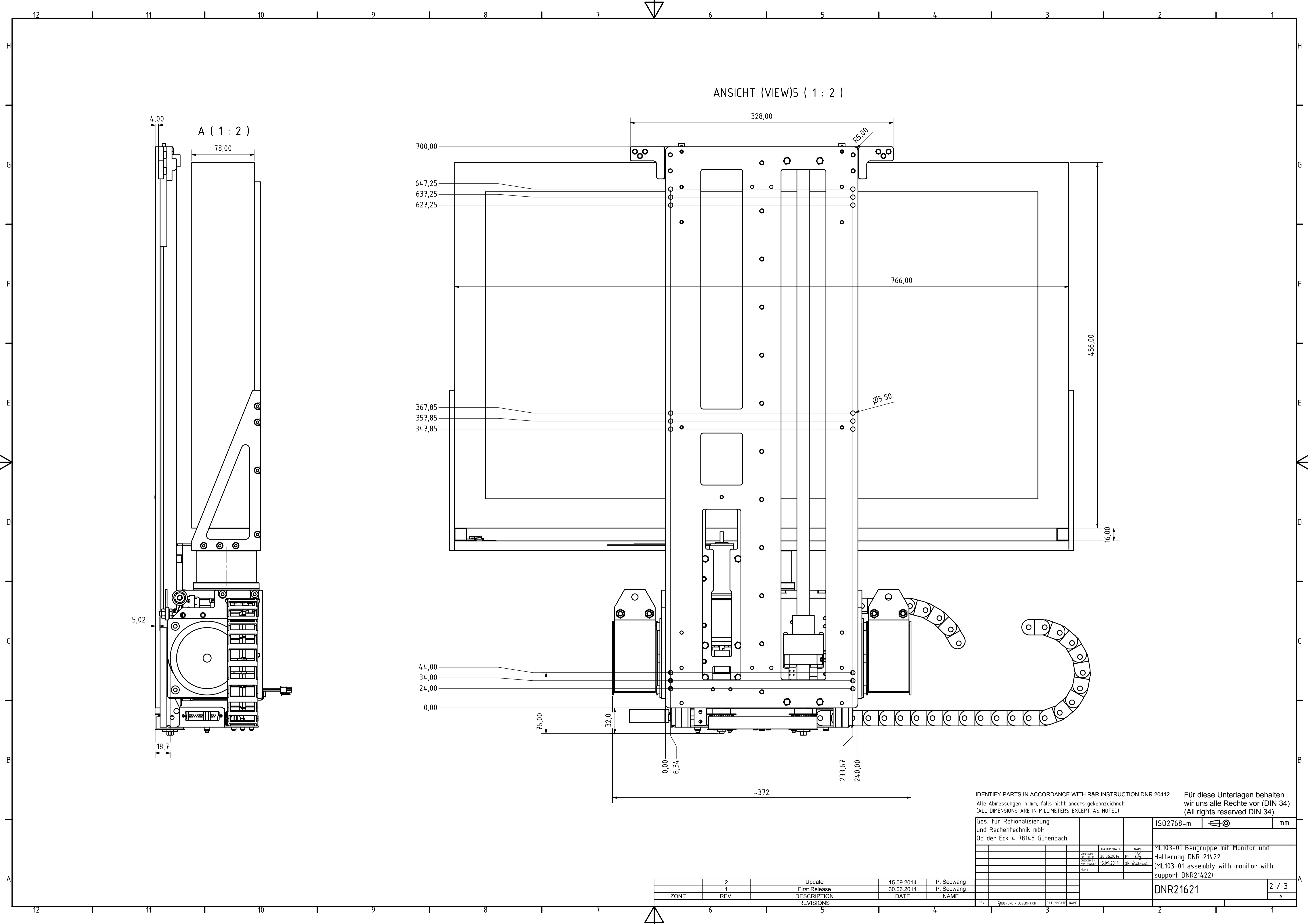
IDENTIFY PARTS IN ACCORDANCE WITH R&R INSTRUCTION DNR 20412

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Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m		mm	
ORIGINATOR	27.06.2014	DS	ML103-01 Baugruppe (ML103-01 assembly)		
ERSTELLT	15.09.2014	sk			
KONTROLLIERT					
Norm					
REV.	ÄNDERUNG / DESCRIPTION	DATUM/DATE	NAME	Stückliste DNR21622 L#16523	
				DNR21589	
				8 / 8	
				A2	

ZONE	REV.	DESCRIPTION	DATE	NAME
	2	Update	15.09.2014	P.Seewang
	1	First Release	30.06.2014	P. Seewang
ZONE	REV.	DESCRIPTION	DATE	NAME
REVISIONS				



ANSICHT (VIEW)5 (1 : 2)

A (1 : 2)

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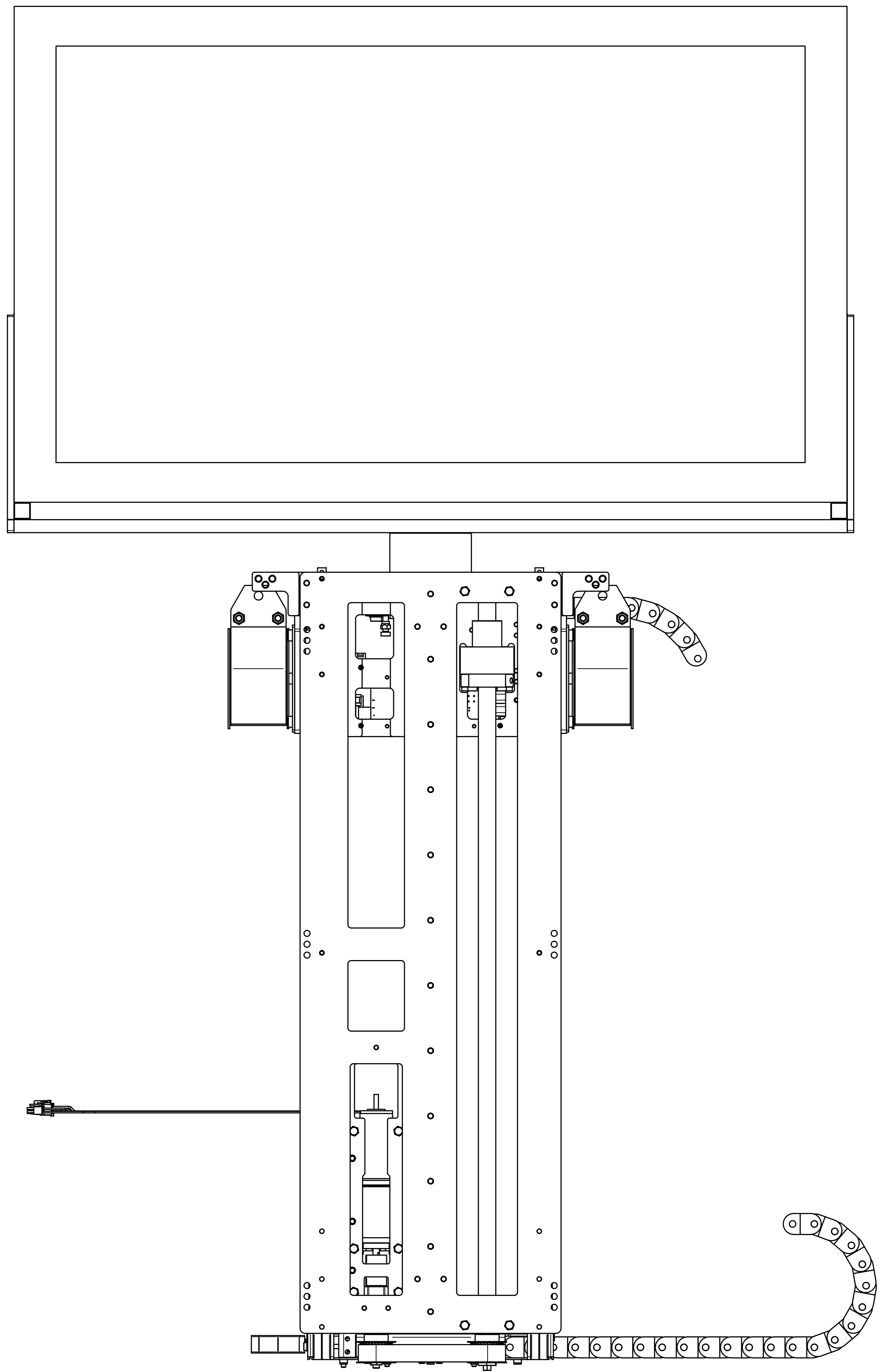
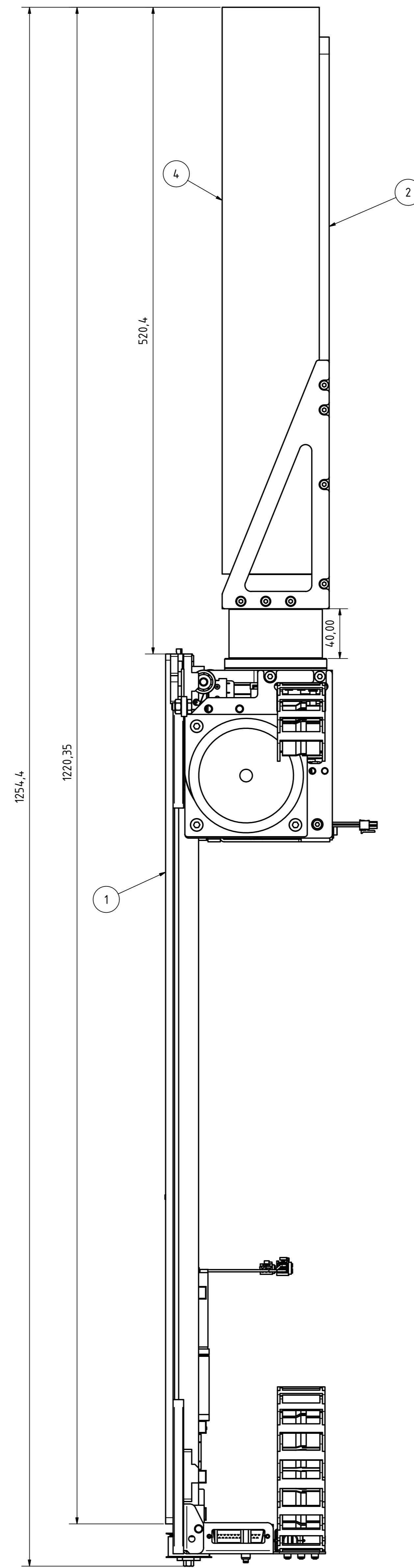
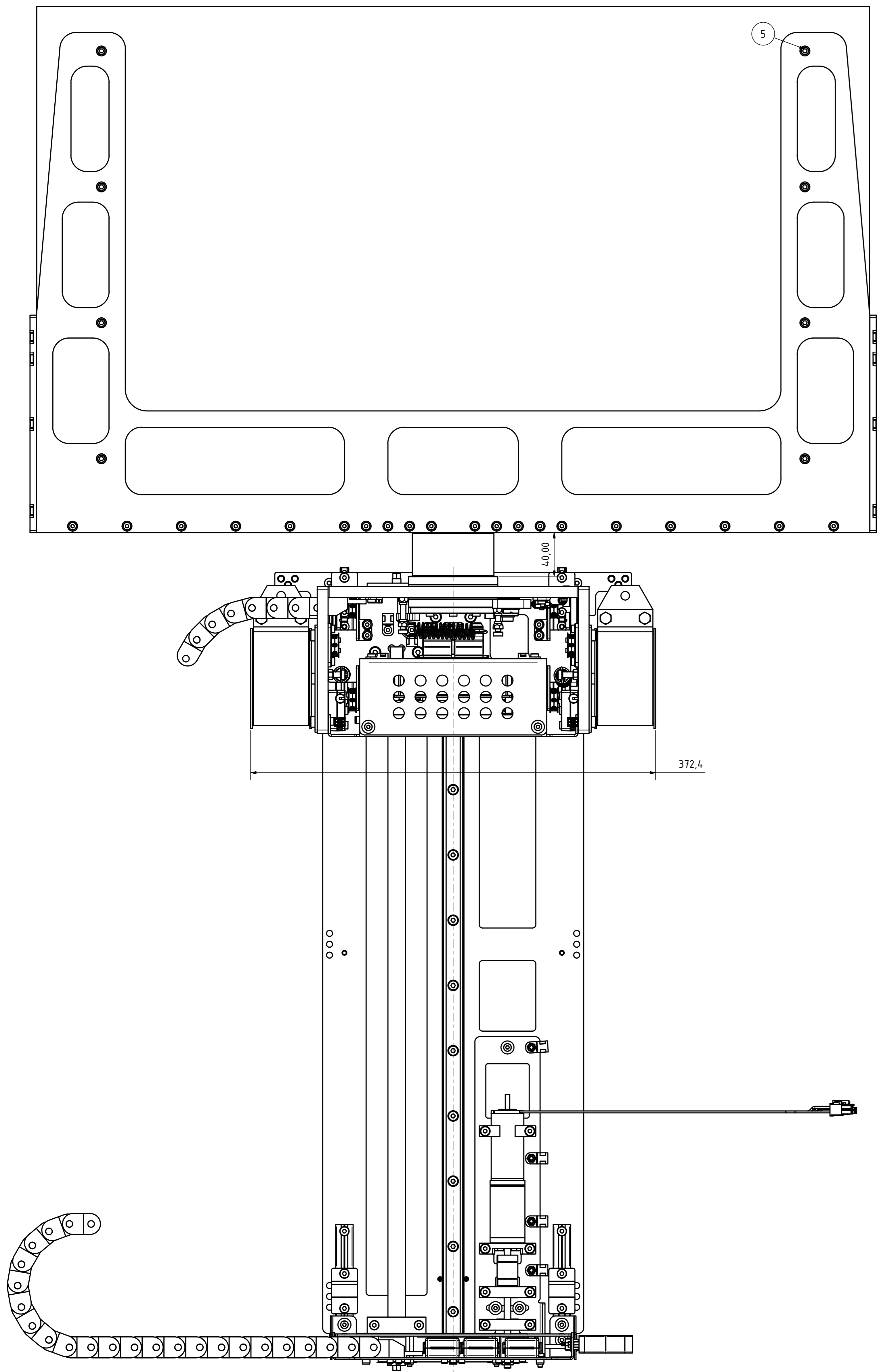
Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Gütenbach		ISO2768-m	mm
PROJANTOR	30.06.2014	NAME	ML103-01 Baugruppe mit Monitor und Halterung DNR 21422
ZEICHNER	15.09.2014	NAME	(ML103-01 assembly with monitor with support DNR21422)
REV.	ÄNDERUNG / DESCRIPTION	DATE	NAME
2	Update	15.09.2014	P. Seewang
1	First Release	30.06.2014	P. Seewang
ZONE	REV.	DESCRIPTION	REVISIONS
DNR21621			2 / 3 A1

2	Update	15.09.2014	P. Seewang
1	First Release	30.06.2014	P. Seewang
ZONE	REV.	DESCRIPTION	REVISIONS

ANSICHT (VIEW)6 (1 : 2)

ANSICHT (VIEW)7 (1 : 2)

ANSICHT (VIEW)8 (1 : 2)



TEILELISTE (PARTLIST)									
OBJEKT	BAUTEIL(PART)	BESCHREIBUNG	DESCRIPTION	MATERIAL	MASSSE (weight)	ANZAHL (QUANTITY)	LNBR (PARTNUMBER)	NAME	REMARK
1	DNR21289	ML103-01 Baugruppe Motorflr	ML103-01 assembly motor flr		10,878 kg	1	16523		
2	DNR21422	ML101 Baugruppe Monitorhalterung	ML101 assembly monitor mounting		3,340 kg	1	16265		
3	Zylinderschraube 16rund NF E 25-111 - M4x16 Festigkeitsklasse 4.8 A2	Zylinderschraube Sechskantkopf - Produktklasse A - Symbol CZX	six lobe drive head bolt -M4x16 Festigkeitsklasse 4.8 A2	Edestahl	0,002 kg	8	11349		
4	DNR21337	LCD 30-inch Jet-Aviation	LCD 30-inch Jet-Aviation	Aluminium 6061	18,000 kg	1			
5	ANSI/B18.3 - Nr. 6 - 32 UNC - 1/2 HS HCS	Innenrechteckschraube	Star. winch		0,005 lb	8			

IDENTIFY PARTS IN ACCORDANCE WITH R&R INSTRUCTION DNR 20412 Für diese Unterlagen behalten wir uns alle Rechte vor (DIN 34)
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Ges. für Rationalisierung und Rechentechnik mbH Ob der Eck 4 78148 Güttenbach		ISO2768-m	mm
REVISIONS	DATE	NAME	DESCRIPTION
2	15.09.2014	P. Seewang	Update
1	30.06.2014	P. Seewang	First Release
Stückliste DNR21783		DNR21621	3 / 3