

Tap Changer Type MHM

Specification, Assembly and Materials



Descriptions	Remarks
General Specifications	<ul style="list-style-type: none"> available in one, two or three phase application multi layer types upon request shaft length is fixed as sizes 91 and 131 mm driving mechanism can be either on the edge or in the middle of the phases connection diagrams (on Page 4) can be applied in any variation to all types are bolted together with supports under transformer cover and allow strong construction

Materials

Steel Parts	<ul style="list-style-type: none"> available in stainless or mild steel mild steel parts are cadmium or zinc plated 	galvanizing upon request
Polyamide Parts	Nylon 66 / superior mechanical properties against all acting forces / strong against UV lights	
Aluminium Parts	GAlSi12(Cu)	
Brass Parts	CuZn40Pb2 (CW617N) / F34 DIN 17 673	
Copper Parts	E-Cu F25 DIN 40500	
Insulator Parts	Paper phenol - plastic resin based laminates / HP 2061.5 class of DIN 7735	
Transformer Cover Thickness	10 mm - 4 mm (6 spacer rings with each 1 mm)	
Current	30 A / 63 A / 120 A	
Upon Request	<ul style="list-style-type: none"> aluminum parts can be protected by anodic oxidation mild steel parts supplied in stainless steel brass and copper parts are either tin- or silver-plated 	

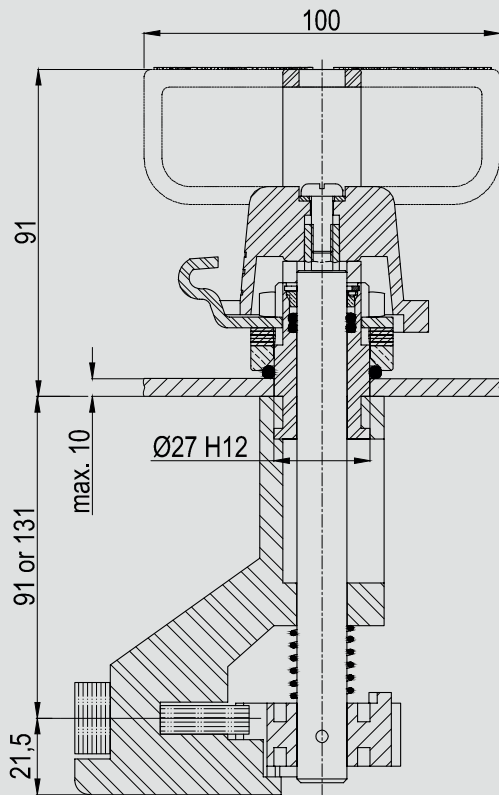
Operating Instructions

For each operation, the handle must first be pulled axially in the direction of the user in order to be subsequently rotated to the desired position. After being turned, the handle drops into the intended position by means of a high tension spring. Each position is precisely marked by a notch.

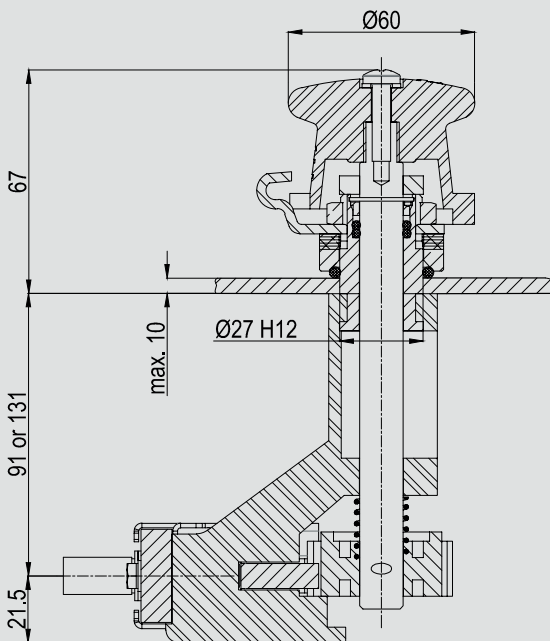
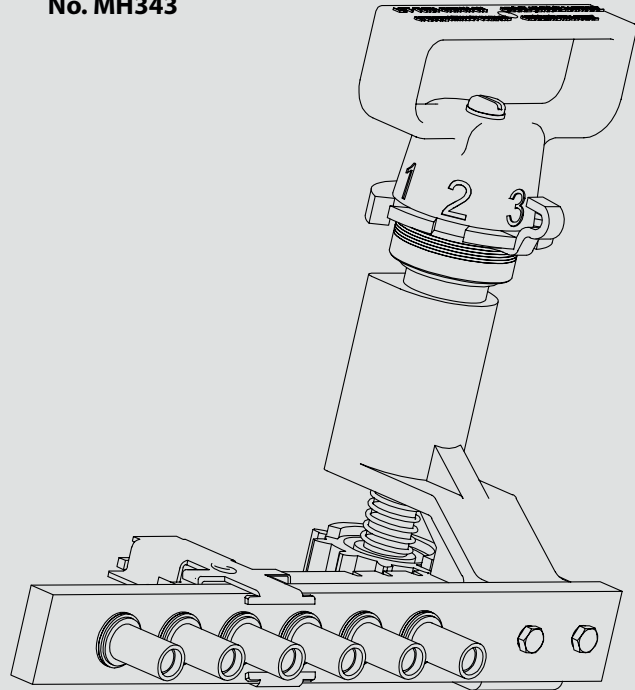
This process is clearly marked on control knob as; „ **LIFT - TURN - SWITCH ON** „ (can be engraved in any language)

Current	Contact inner dia. (cable connection)	Voltage Class	B.I.L
30 A	Ø 3,1 mm	20 kV	125 kV
63 A	Ø 5,1 mm	30 kV	170 kV
120 A	Ø 8,1 mm	other B.I.L. values upon request	

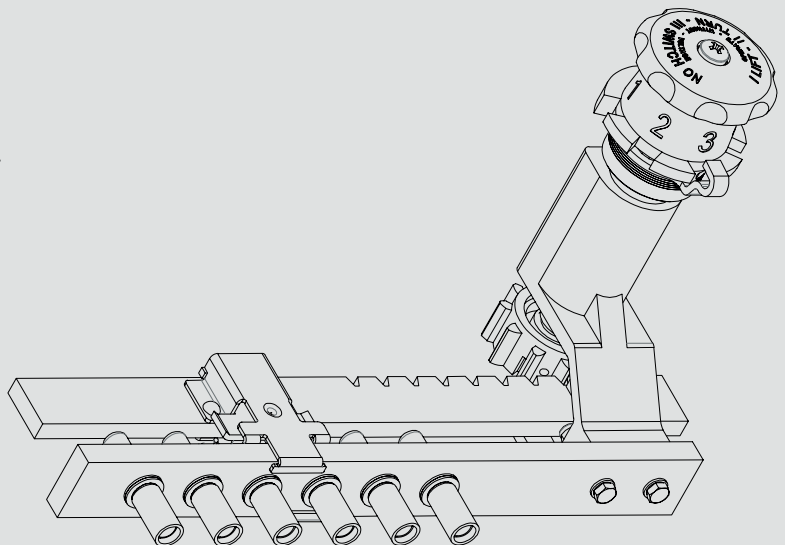
Type MHM Threephase Tap Changer
Control Devices



Control Device
No. MH343



Control Device
No. MH363

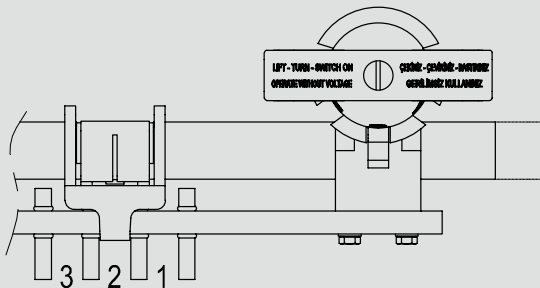
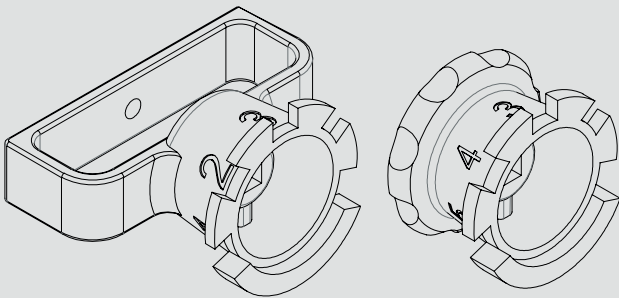


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Handle Directions and Numbering Combinations

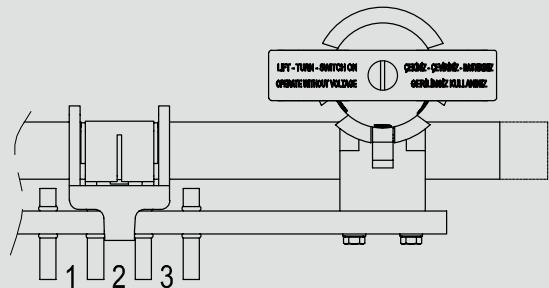
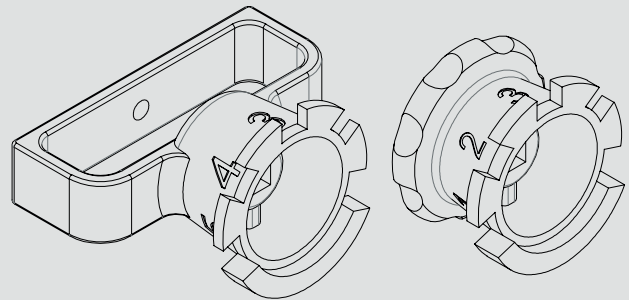
Handle direction A1

Clockwise direction

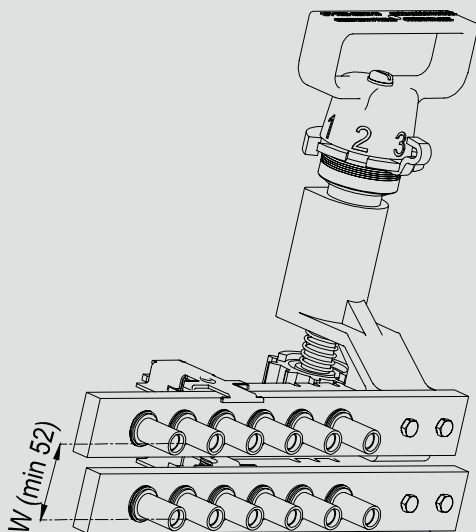


Handle direction B1

Counterclockwise direction

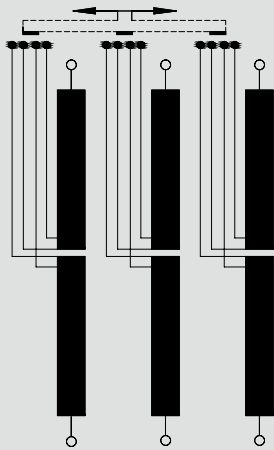


Numbering Combinations

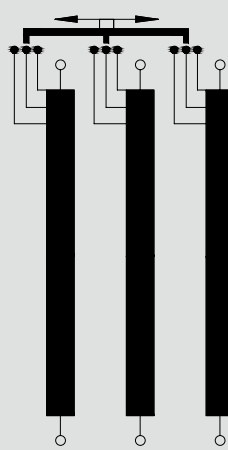


- all MHM tap changers can be paired by superimposing several tap changers whose purpose
- built steel brackets are assembled by nuts and bolts
- depending on the diagram adopted, the user can:
 - either operate the tap changers with one shaft
 - or operate part of the tap changers with one shaft, and the other part with another shaft
- the position of the coupling taps shaft and the position of the setting taps shaft has to be specified
- Note: It is essential, when ordering, to quote dimension „W“ the minimum of which to be set in each case depends on the insulation conditions and on the position of the different tap changers

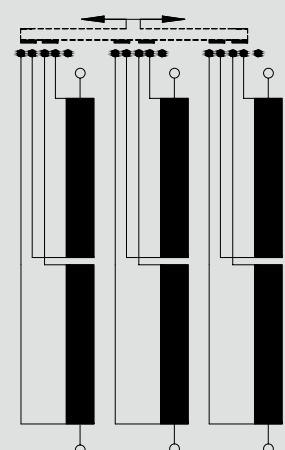
Type MHM Threephase Tap Changer
Connection Diagrams



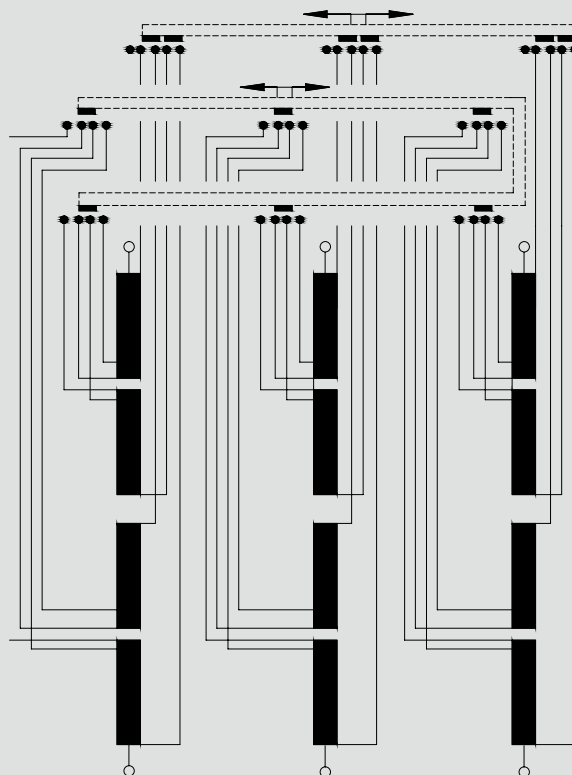
Setting for delta Transformer



Setting for star Transformer



Series - parallel coupling



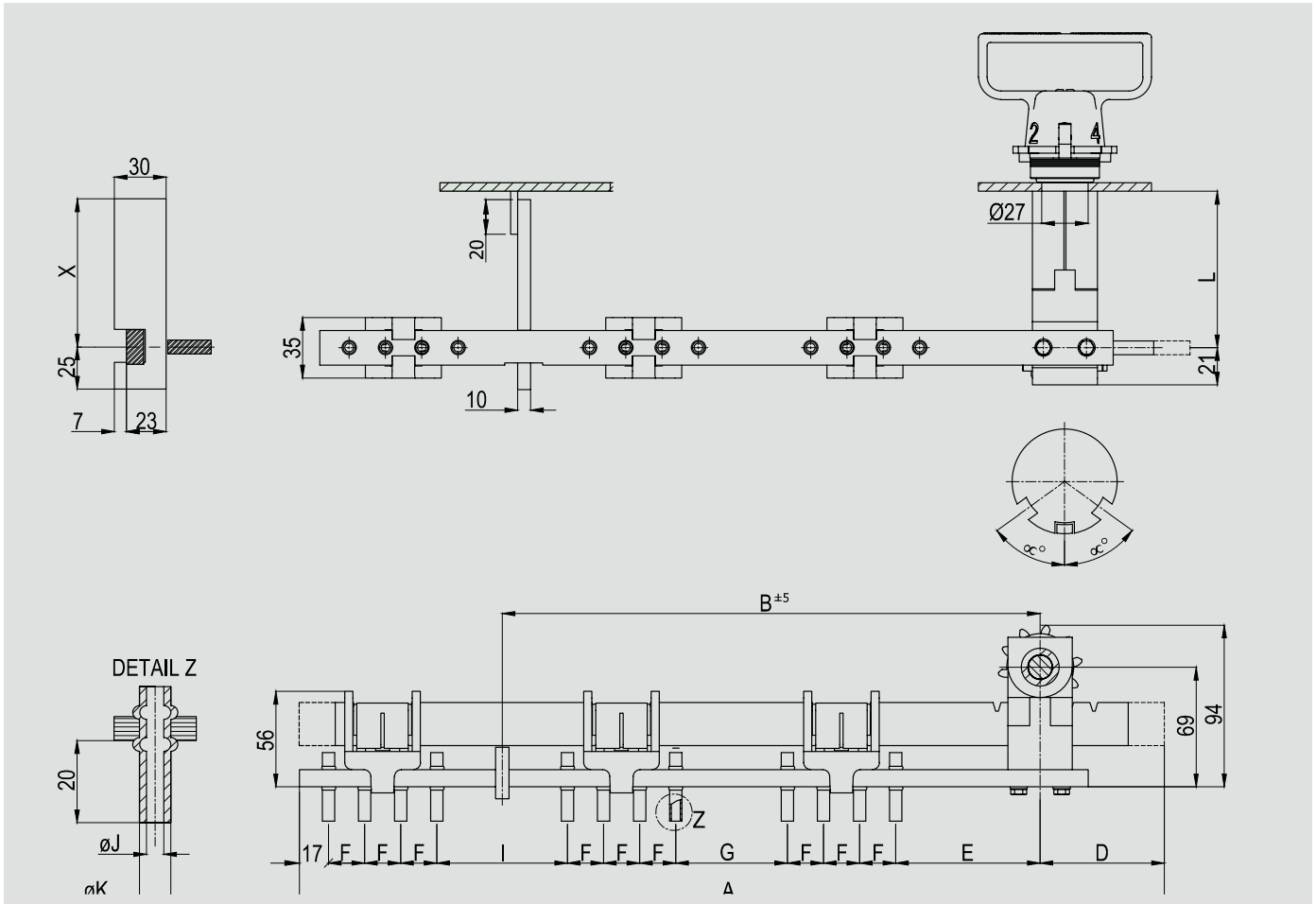
Typical Combination

1 Stage: Series - parallel coupling

2 Stage: Delta diagram - $\pm 2,5\%$

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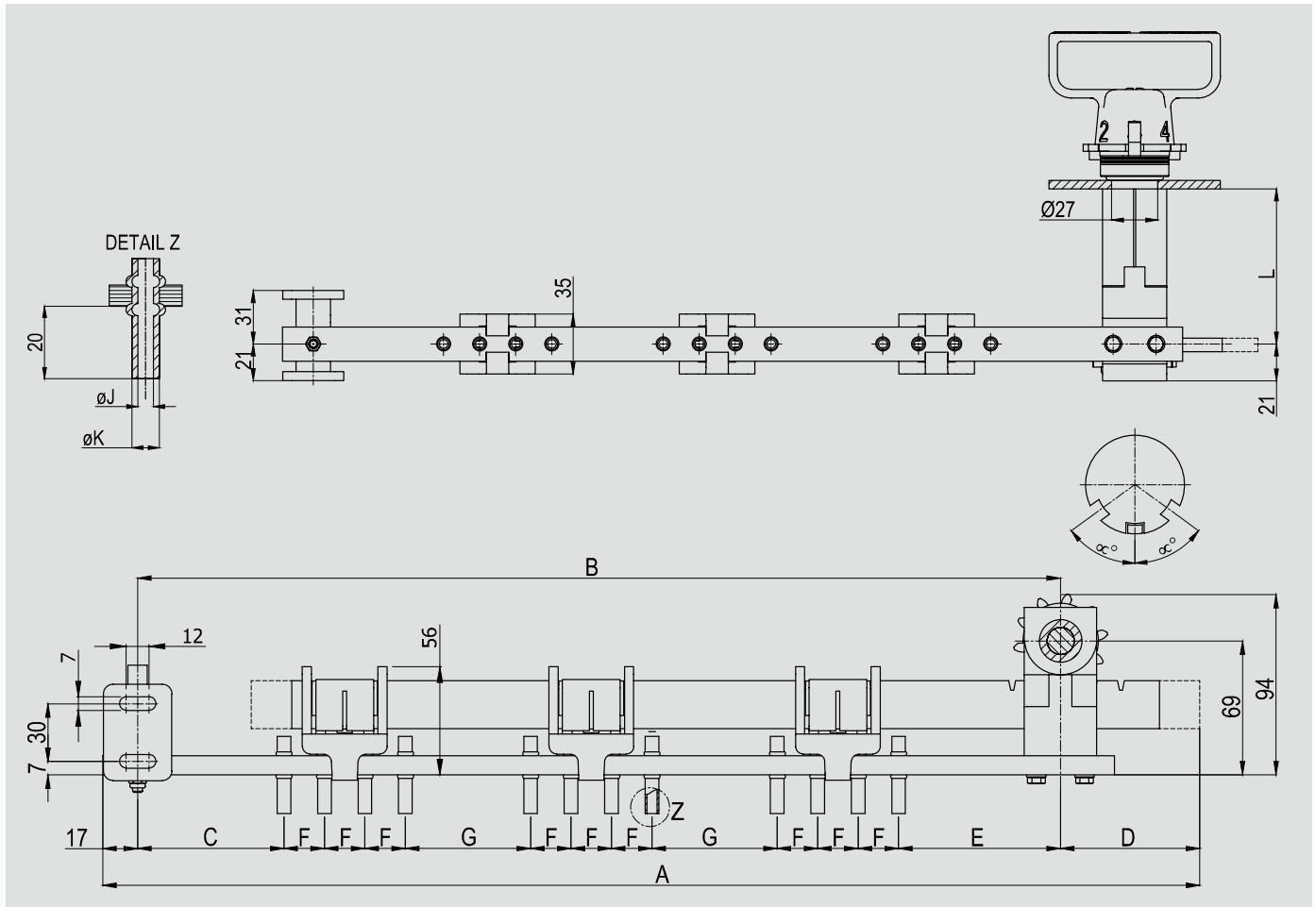
Delta Diagram 20 - 30 kV / 30 - 63 A / 3 - 7 Positions / Setting 2.5 % per Position



Voltage Class kV	Number of Positions	A	B	D	E	F	G	I	&°	Unit No.			
										30 A / J= 3,1 / K= 5		63 A / J= 5,1 / K= 7	
										L= 91 X= 85	L= 131 X= 120	L= 91 X= 85	L= 131 X= 120
20	3	503	313	72	84	21	65	76	54°	AB333D342	AA333D342	AB333D343	AA333D343
	4	587	355	93	84	21	65	76	54°	AB333D442	AA333D442	AB333D443	AA333D443
	5	671	397	114	84	21	65	76	54°	AB333D542	AA333D542	AB333D543	AA333D543
	6	755	439	135	84	21	65	76	54°	AB333D642	AA333D642	AB333D643	AA333D643
	7	839	481	156	84	21	65	76	54°	AB333D742	AA333D742	AB333D743	AA333D743
30	3	583	386	72	125	21	90	90	54°	AB333D352	AA333D352	AB333D353	AA333D353
	4	667	428	93	125	21	90	90	54°	AB333D452	AA333D452	AB333D453	AA333D453
	5	751	470	114	125	21	90	90	54°	AB333D552	AA333D552	AB333D553	AA333D553
	6	835	512	135	125	21	90	90	54°	AB333D652	AA333D652	AB333D653	AA333D653
	7	919	554	156	125	21	90	90	54°	AB333D752	AA333D752	AB333D753	AA333D753

Type MHM Threephase Tap Changer

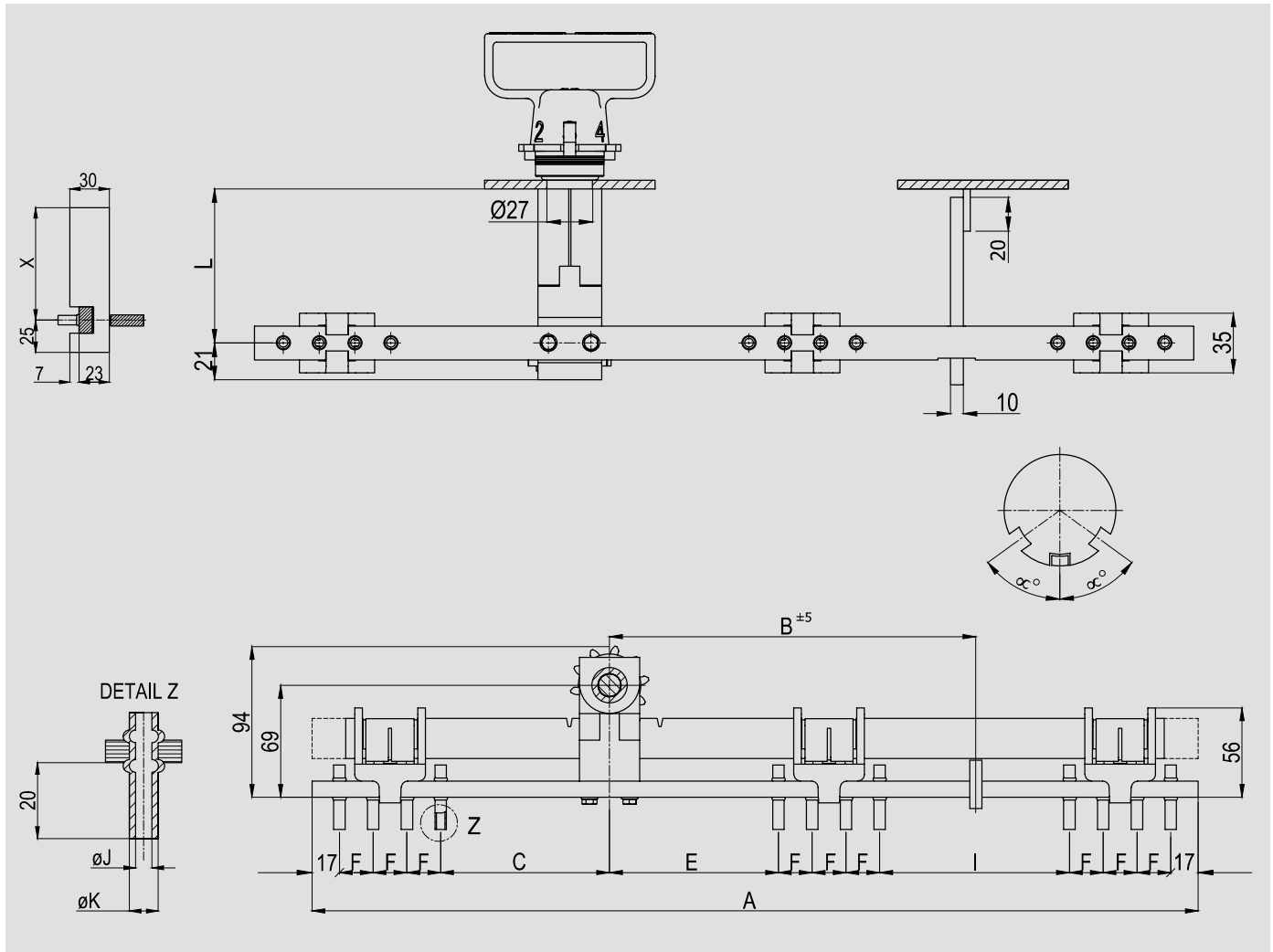
Delta Diagram 20 - 30 kV / 30 - 63 A / 3 - 7 Positions / Setting 2.5 % per Position



Voltage Class kV	Number of Positions	A	B	C	D	E	F	G	α°	Unit No.			
										30 A / J= 3,1 / K= 5		63 A / J= 5,1 / K= 7	
										L= 91	L= 131	L= 91	L= 131
20	3	569	479	76	72	84	21	65	54°	AB331D342	AA331D342	AB331D343	AA331D343
	4	653	542	76	93	84	21	65	54°	AB331D442	AA331D442	AB331D443	AA331D443
	5	737	605	76	114	84	21	65	54°	AB331D542	AA331D542	AB331D543	AA331D543
	6	821	668	76	135	84	21	65	54°	AB331D642	AA331D642	AB331D643	AA331D643
	7	905	731	76	156	84	21	65	54°	AB331D742	AA331D742	AB331D743	AA331D743
30	3	701	611	117	72	125	21	90	54°	AB331D352	AA331D352	AB331D353	AA331D353
	4	785	674	117	93	125	21	90	54°	AB331D452	AA331D452	AB331D453	AA331D453
	5	869	737	117	114	125	21	90	54°	AB331D552	AA331D552	AB331D553	AA331D553
	6	953	800	117	135	125	21	90	54°	AB331D652	AA331D652	AB331D653	AA331D653
	7	1037	863	117	156	125	21	90	54°	AB331D752	AA331D752	AB331D753	AA331D753

Type MHM Threephase Tap Changer

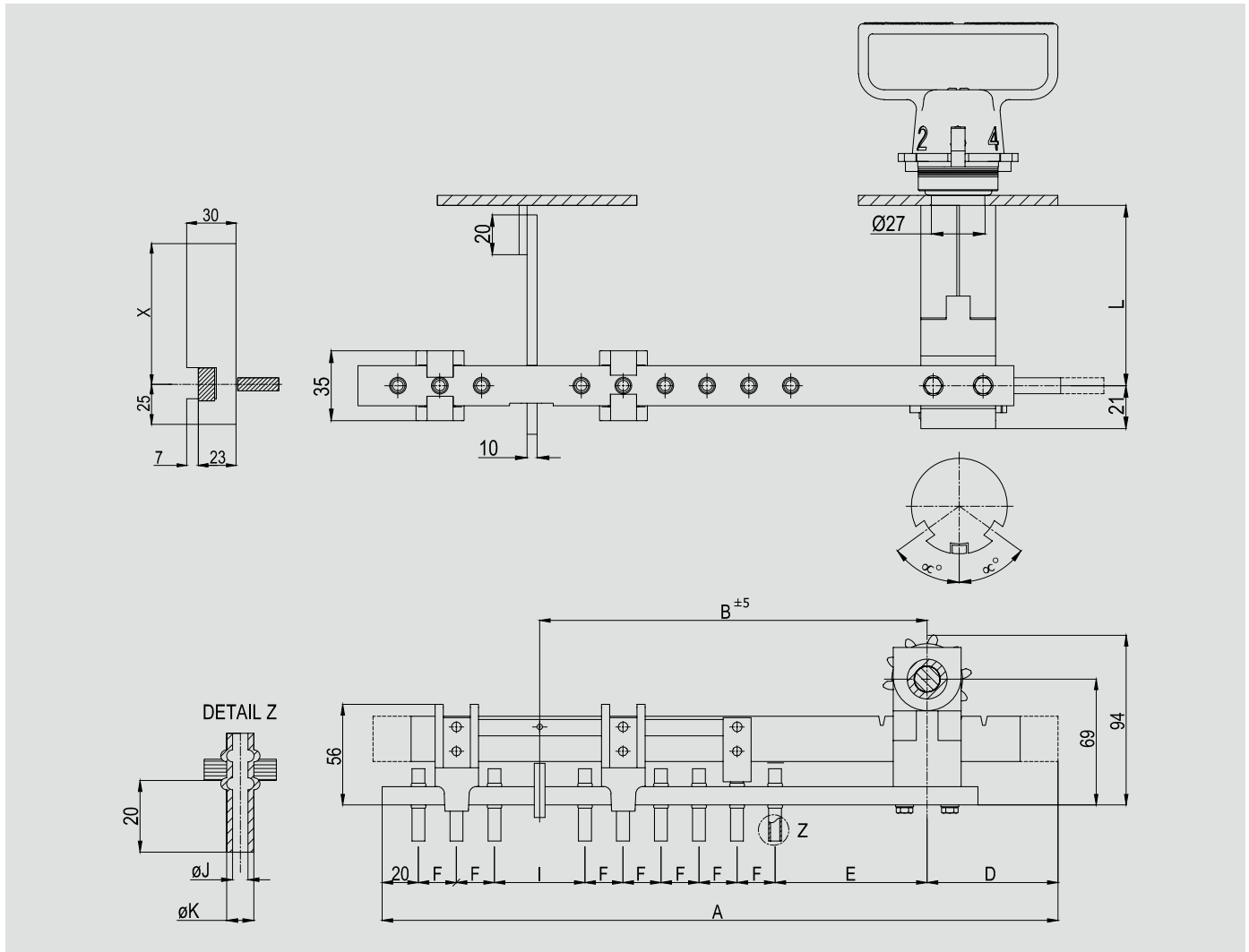
Delta Diagram 20 - 30 kV / 30 - 63 A / 3 - 7 Positions / Setting 2.5 % per Position



Voltage Class kV	Number of Positions	A	B	C	E	F	I	α°	Unit No.			
									30 A / J= 3,1 / K= 5		63 A / J= 5,1 / K= 7	
									L= 91 X= 85	L= 131 X= 120	L= 91 X= 85	L= 131 X= 120
20	3	551	227	105	105	21	118	54°	AB335D342	AA335D342	AB335D343	AA335D343
	4	572	227	105	84	21	97	54°	AB335D442	AA335D442	AB335D443	AA335D443
	5	593	227	84	84	21	76	54°	AB335D542	AA335D542	AB335D543	AA335D543
	6	656	248	84	84	21	76	54°	AB335D642	AA335D642	AB335D643	AA335D643
	7	719	269	84	84	21	76	54°	AB335D742	AA335D742	AB335D743	AA335D743
30	3	647	275	146	146	21	132	54°	AB335D352	AA331D352	AB335D353	AA335D353
	4	668	275	146	125	21	111	54°	AB335D452	AA331D452	AB335D453	AA335D453
	5	689	275	125	125	21	90	54°	AB335D552	AA331D552	AB335D553	AA335D553
	6	752	296	125	125	21	90	54°	AB335D652	AA331D652	AB335D653	AA335D653
	7	815	317	125	125	21	90	54°	AB335D752	AA331D752	AB335D753	AA335D753

Type MHM Threephase Tap Changer

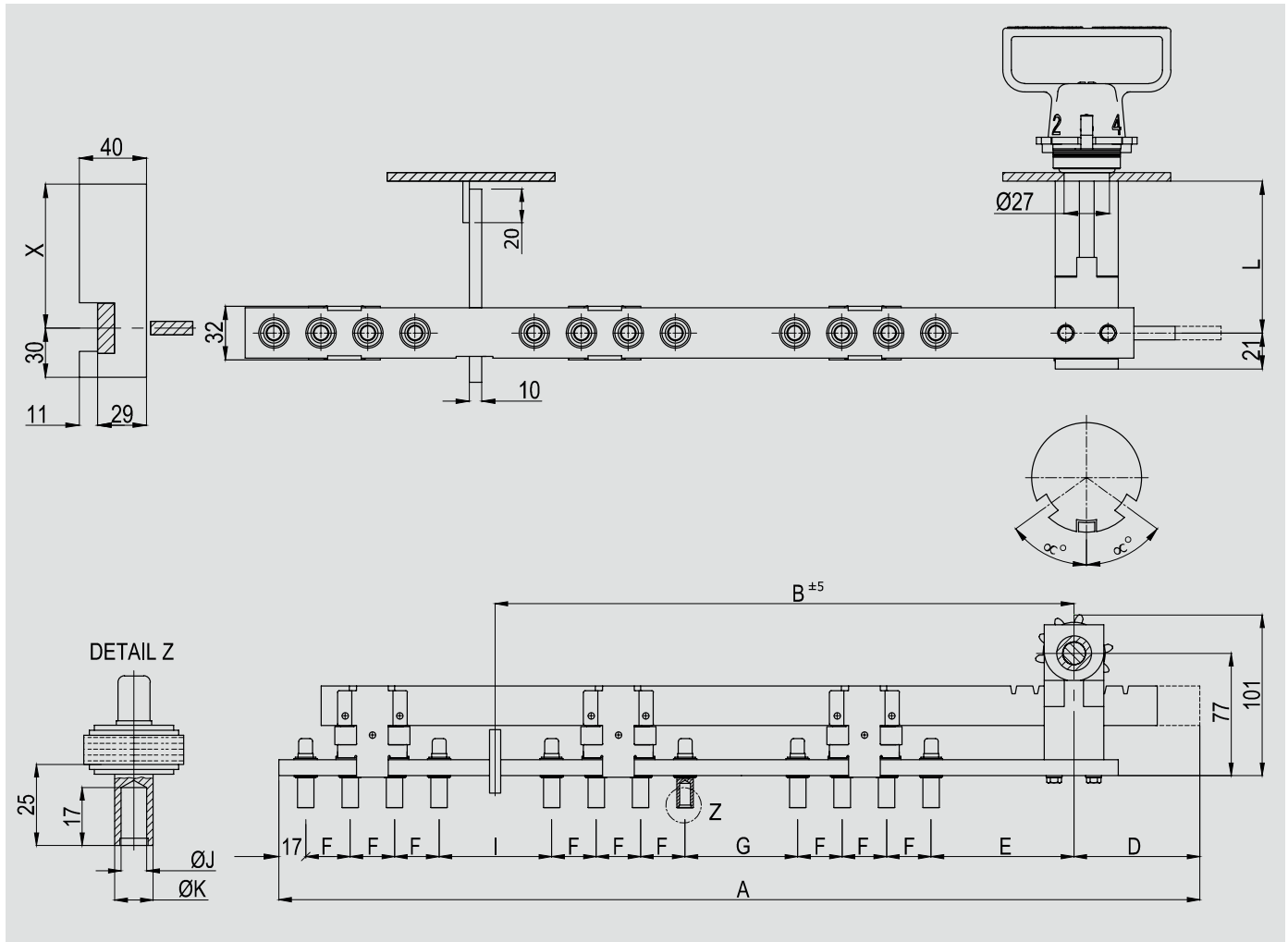
Star Diagram 20 - 30 kV / 30 - 63 A / 3 - 7 Positions / Setting 2.5 % per Position



Voltage Class kV	Number of Positions	A	B	D	E	F	I	°	Unit No.			
									30 A / J= 3,1 / K= 5		63 A / J= 5,1 / K= 7	
									L= 91	L= 131	L= 91	L= 131
20	3	373	214	72	84	21	50	54°	AB333S342	AA333S342	AB333S343	AA333S343
	4	457	256	93	84	21	50	54°	AB333S442	AA333S442	AB333S443	AA333S443
	5	541	298	114	84	21	50	54°	AB333S542	AA333S542	AB333S543	AA333S543
	6	625	340	135	84	21	50	54°	AB333S642	AA333S642	AB333S643	AA333S643
	7	709	382	156	84	21	50	54°	AB333S742	AA333S742	AB333S743	AA333S743
30	3	414	255	72	125	21	50	54°	AB333S352	AA333S352	AB333S353	AA333S353
	4	498	297	93	125	21	50	54°	AB333S452	AA333S452	AB333S453	AA333S453
	5	582	339	114	125	21	50	54°	AB333S552	AA333S552	AB333S553	AA333S553
	6	666	381	135	125	21	50	54°	AB333S652	AA333S652	AB333S653	AA333S653
	7	750	423	156	125	21	50	54°	AB333S752	AA333S752	AB333S753	AA333S753

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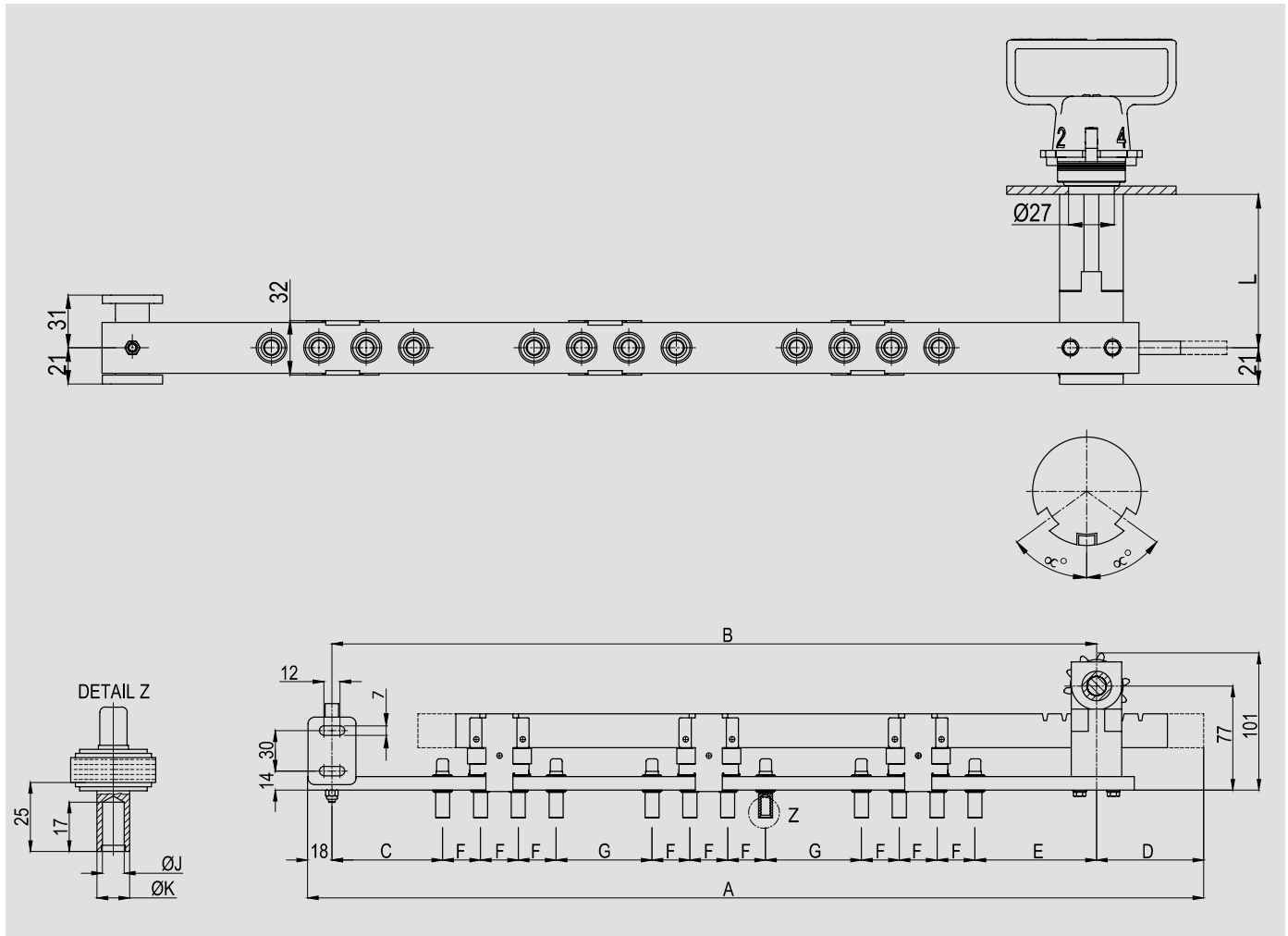
Delta Diagram 20 - 30 kV / 120 A / 3 - 5 Positions / Setting 2.5 % per Position



Voltage Class kV	Current A	Number of Positions	A	B	D	E	F	G	I	&°	Unit No.	
											120 A / J= 8,1 / K= 12	
											L= 91 X= 85	L= 131 X= 120
20	120	3	587	364	86	90	28	71	71	72°	AB333D344	AA333D344
		4	699	420	114	90	28	71	71	72°	AB333D444	AA333D444
		5	811	476	142	90	28	71	71	72°	AB333D544	AA333D544
30	120	3	675	440	86	130	28	95	95	72°	AB333D354	AA333D354
		4	787	496	114	130	28	95	95	72°	AB333D454	AA333D454
		5	899	552	142	130	28	95	95	72°	AB333D554	AA333D554

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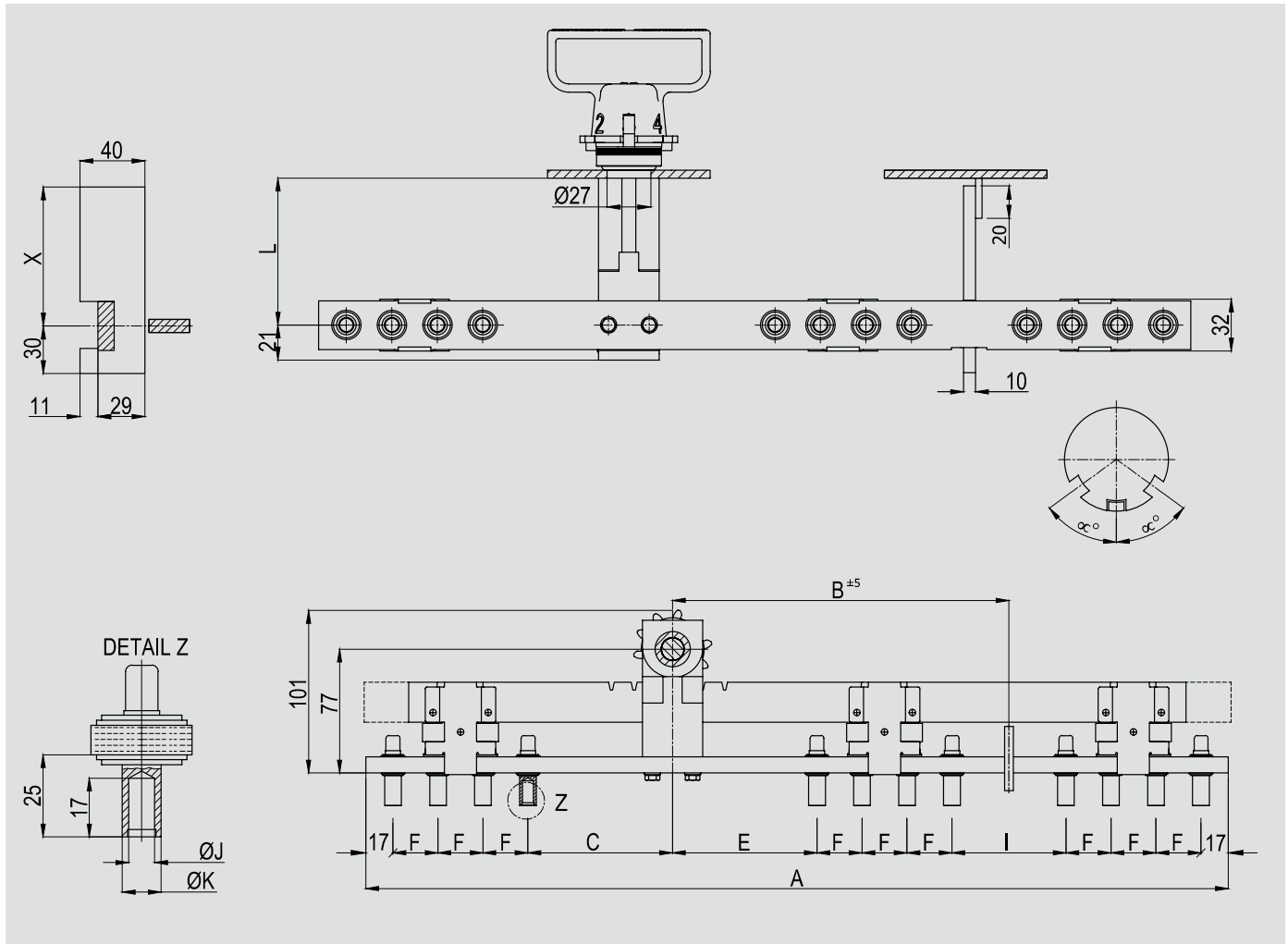
Delta Diagram 20 - 30 kV / 120 A / 3 - 5 Positions / Setting 2.5 % per Position



Voltage Class kV	Current A	Number of Positions	A	B	C	D	E	F	G	&°	Unit No.	
											120 A / J= 8,1 / K= 12	
											L= 91	L= 131
20	120	3	670	566	82	86	90	28	71	72°	AB331D344	AA331D344
		4	782	650	82	114	90	28	71	72°	AB331D444	AA331D444
		5	894	734	82	142	90	28	71	72°	AB331D544	AA331D544
30	120	3	798	694	122	86	130	28	95	72°	AB331D354	AA331D354
		4	910	778	122	114	130	28	95	72°	AB331D454	AA331D454
		5	1022	862	122	142	130	28	95	72°	AB331D554	AA331D554

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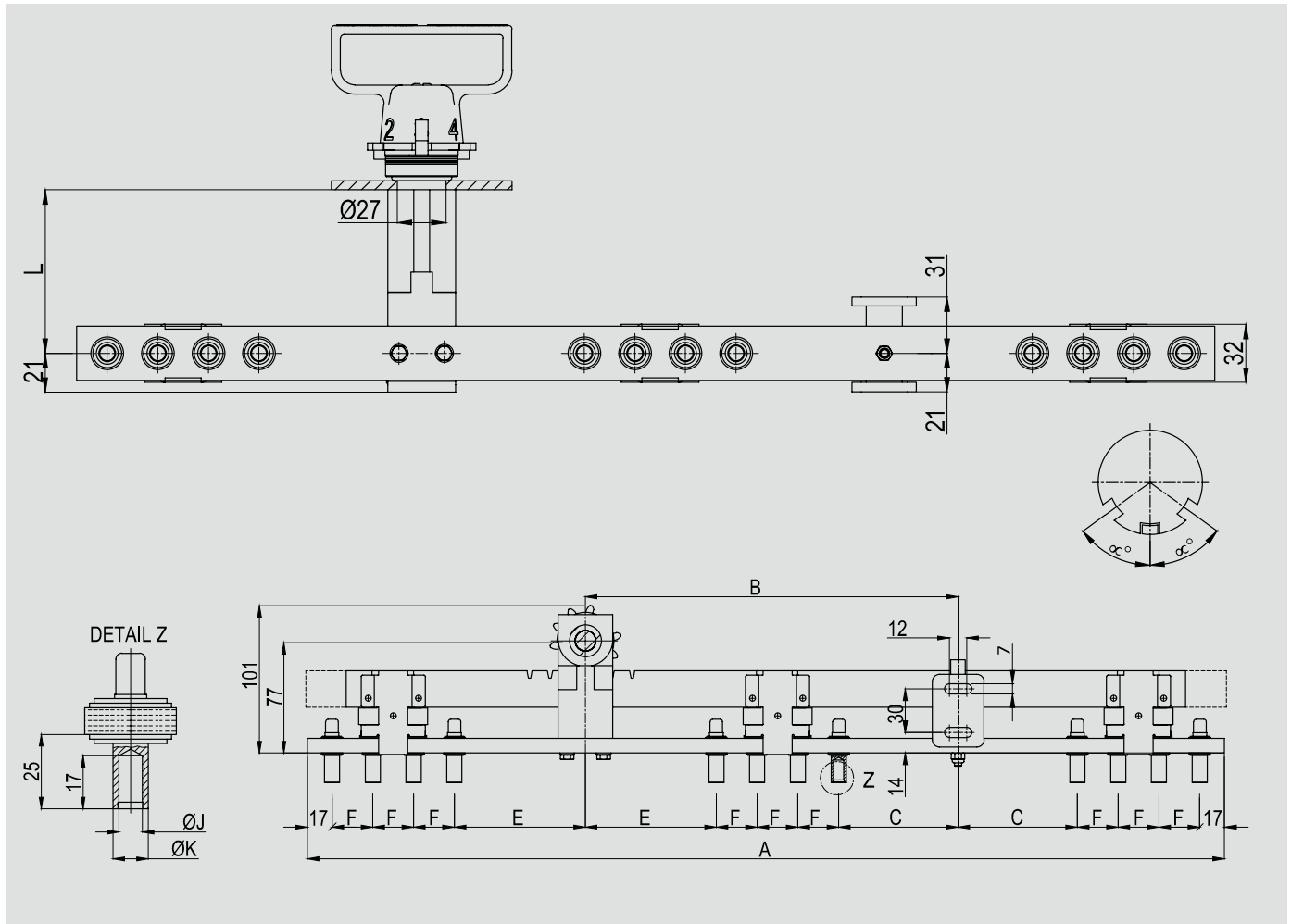
Delta Diagram 20 - 30 kV / 120 A / 3 - 5 Positions / Setting 2.5 % per Position



Voltage Class kV	Current A	Number of Positions	A	B	C	E	F	I	&°	Unit No.	
										120 A / J= 8,1 / K= 12	
										L= 91 X= 85	L= 131 X= 120
20	120	3	537	209	90	90	28	71	72°	AB335D344	AA335D344
		4	621	237	90	90	28	71	72°	AB335D444	AA335D444
		5	705	265	90	90	28	71	72°	AB335D544	AA335D544
30	120	3	641	261	130	130	28	95	72°	AB335D354	AA335D354
		4	725	289	130	130	28	95	72°	AB335D454	AA335D454
		5	809	317	130	130	28	95	72°	AB335D554	AA335D554

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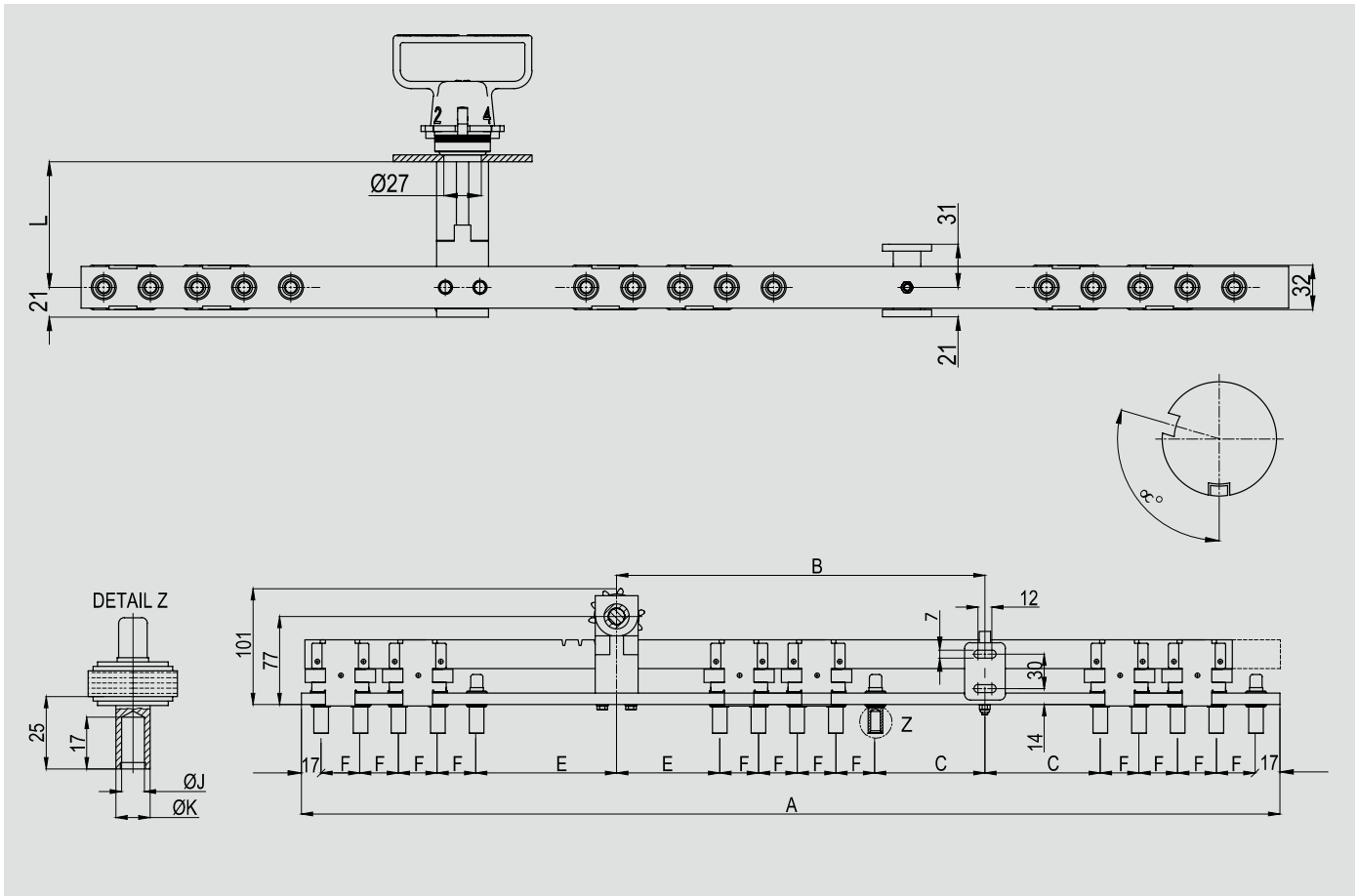
Delta Diagram 20 - 30 kV / 120 A / 3 - 5 Positions / Setting 2.5 % per Position



Voltage Class kV	Current A	Number of Positions	A	B	C	E	F	&°	Unit No.	
									120 A / J= 8,1 / K= 12	
									L= 91 X= 85	L= 131 X= 120
20	120	3	630	256	82	90	28	72°	AB334D344	AA334D344
		4	714	284	82	90	28	72°	AB334D444	AA334D444
		5	798	312	82	90	28	72°	AB334D544	AA334D544
30	120	3	790	336	122	130	28	72°	AB334D354	AA334D354
		4	874	364	122	130	28	72°	AB334D454	AA334D454
		5	958	392	122	130	28	72°	AB334D554	AA334D554

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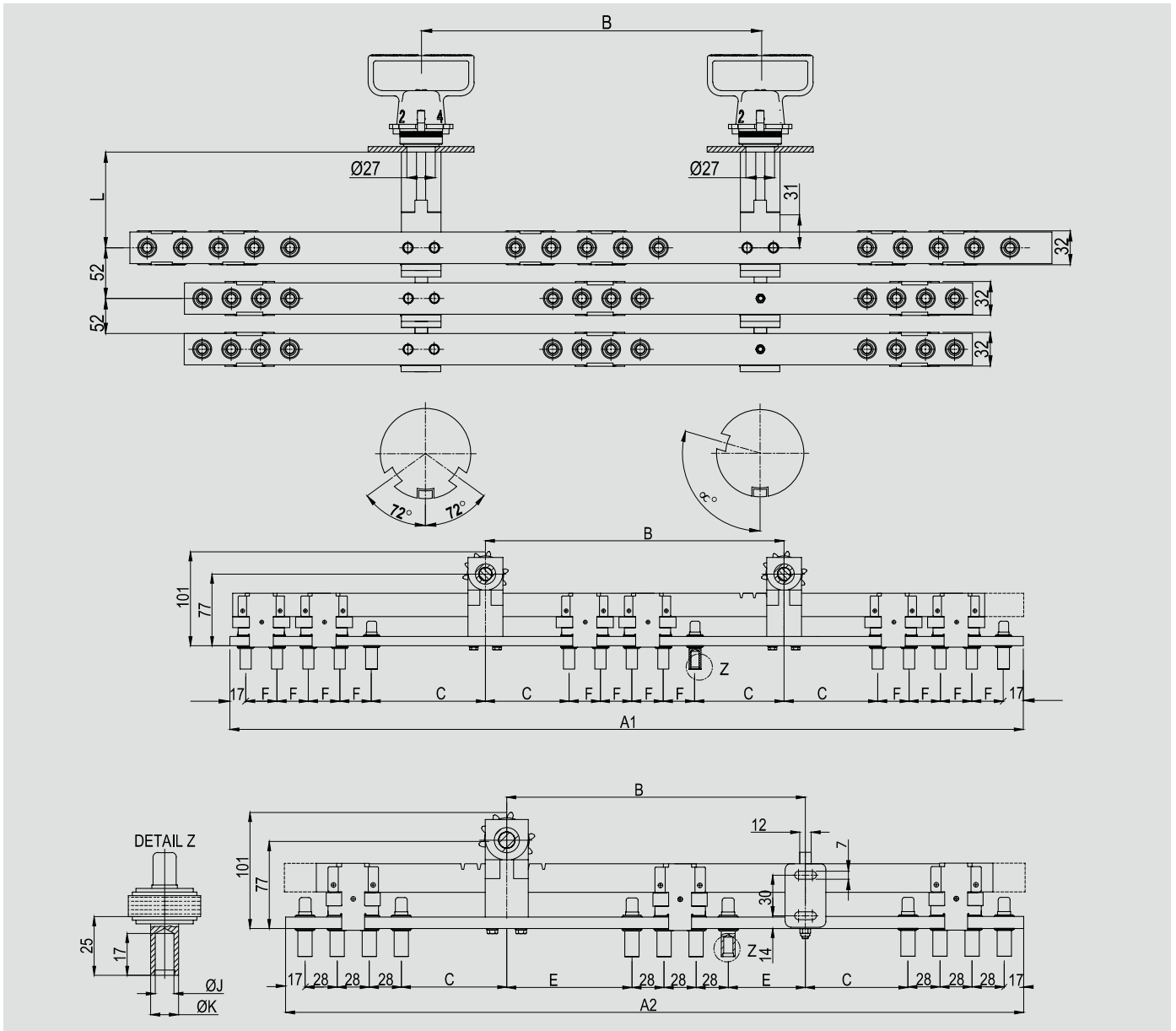
Series Parallel Coupling 20 - 30 kV / 120 A



Voltage Class kV	Current A	A	B	C	E	F	8°	Unit No.	
								120 A / J= 8,1 / K= 12	
								L= 91	L= 131
10 - 20	120	882	340	82	90	42	108°	AB334P272	AA334P274
25 - 30	120	1126	448	122	130	49	126°	AB334P284	AA334P284

Type MHM Threephase Tap Changer

1. Series Parallel Coupling 10 - 20 kV / 120 A
2. Delta Setting 20 - 30 kV / 120 A / Setting 2.5 % per Position



Voltage Class kV		Number of Positions	A1	A2	B	C	E	F	&°	Unit No.	
Series Parallel	Delta									120 A / J= 8,1 / K= 12	
										L= 91	L= 131
10 - 20	20	3		730			132		108°	AB354K374	AA354K374
		4	898	786	348	90	118	42		AB354K474	AA354K474
		5		842				104			AB354K574
25 - 30	30	3		918			186			AB354K384	AA354K384
		4	1142	974	456	130	172	49	126°	AB354K484	AA354K484
		5		1030				158			AB354K584

When ordering please quote

- 1 - Tap changer unit no.
- 2 - Voltage class, current and type of setting or coupling
- 3 - Control device no. (MH 343 / MH 363)
- 4 - The language on the control device (Page 1)
- 5 - Number of positions
- 6 - The indication of the repeater disc (A1, B1)
- 7 - Dimensions of the fixed contacts (J and K)
- 8 - L, e, X, W dimensions from the tables

For special setups not shown in the catalogue please contact us