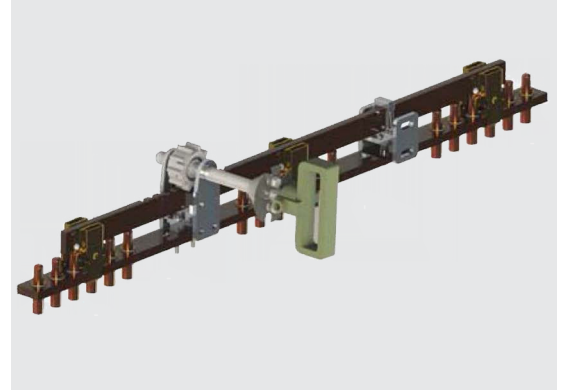


# Tap Changer Type KHZ

## Specification, Assembly and Materials



Descriptions	Remarks
General Specifications	<ul style="list-style-type: none"> <li>• available in one, two or three phase application</li> <li>• multi layer types upon request</li> <li>• shaft length available in variable sizes</li> <li>• driving mechanism can be either on the edge or in the middle of the phases</li> <li>• connection diagrams (on page 5) can be applied in any variation to all types</li> <li>• are bolted together with supports under transformer cover and allow strong construction</li> </ul>

### Materials

Steel Parts	<ul style="list-style-type: none"> <li>• available in stainless or mild steel</li> <li>• mild steel parts are cadmium or zinc plated</li> </ul>	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	
Current	30 A / 63 A / 120 A	
Upon Request	<ul style="list-style-type: none"> <li>• aluminium parts can be protected by anodic oxidation</li> <li>• mild steel parts supplied in stainless steel</li> <li>• brass and copper parts are either tin-, silver- or cadmium-plated</li> </ul>	

### Operating Instructions

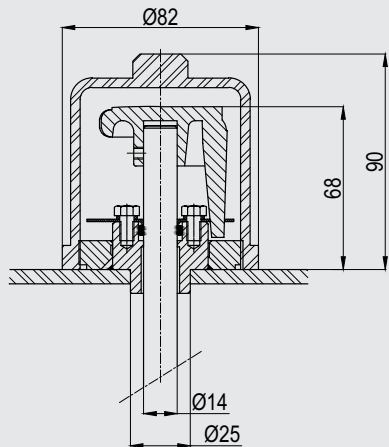
For each operation, the handle must first be pulled axially in the direction of the user in order to be subsequently rotated to the desired position. After being turned, the handle drops into the intended position by means of a high tension spring. Each position is precisely marked by a notch.

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

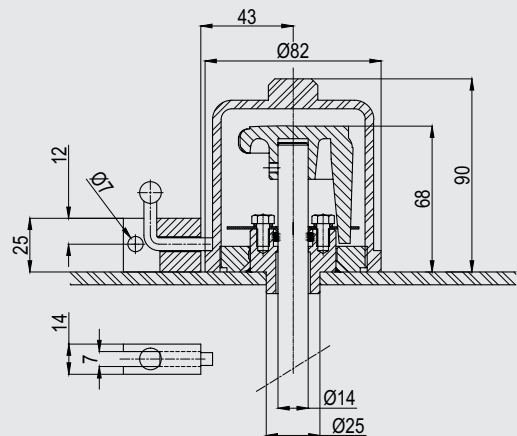
Current	Contact inner dia. (cable connection)	Voltage Class	B.I.L (other values upon request)
30 A	Ø 3,1 mm	10 kV	75 kV
63 A	Ø 5,1 mm	15 kV	95 kV
120 A	Ø 8,1 mm	20 kV	125 kV
		30 kV	170 kV

## Type KHZ Threephase Tap Changer Control Devices

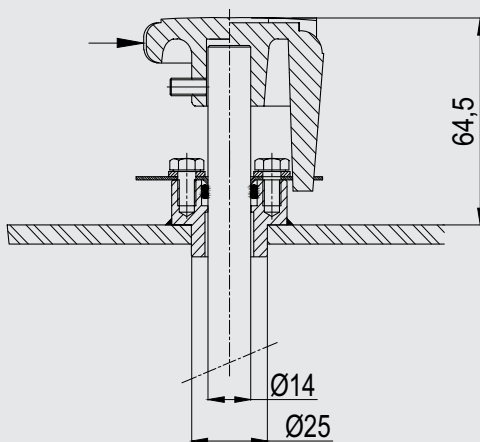
**KH 341 (With Protective Cover Standard Type)**



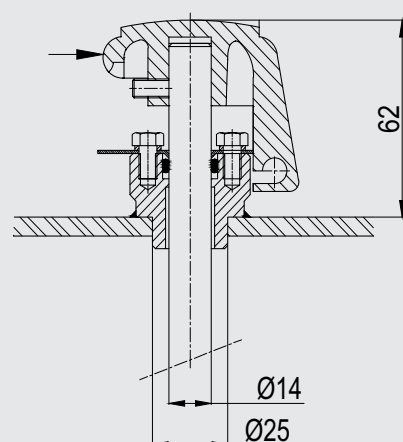
**KH 341A (With Protective Cover Padlockable Type)**



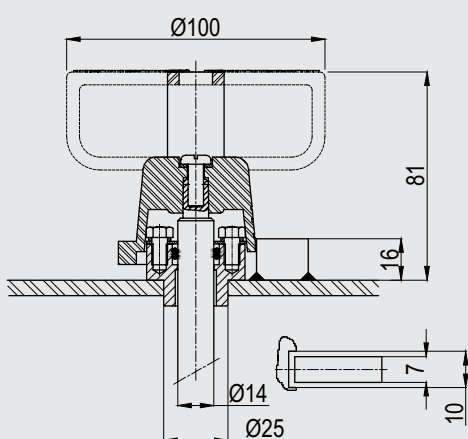
**KH 342 (Standard Type)**



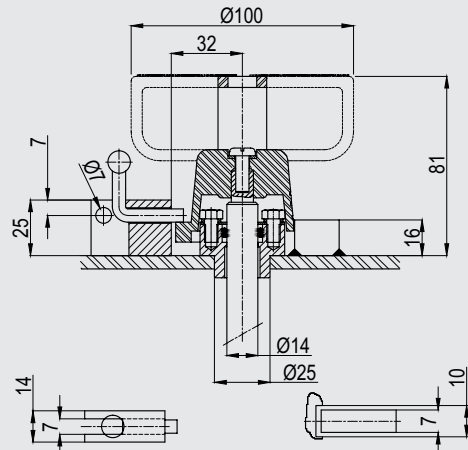
**KH 342A (Padlockable Type)**



**KH 353 (Standard Type)**



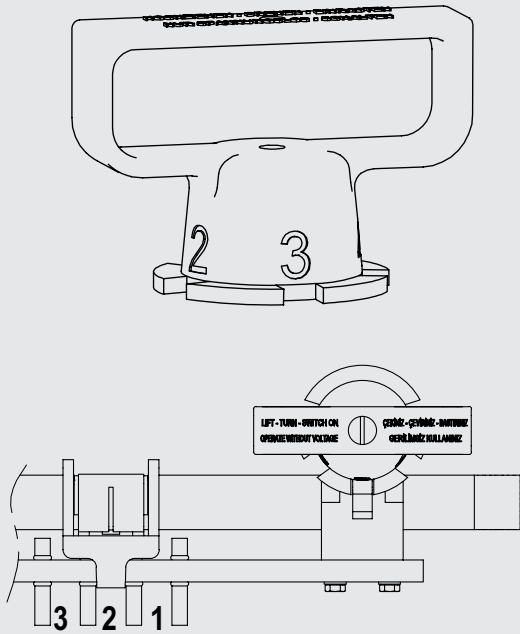
**KH 353A (Padlockable Type)**



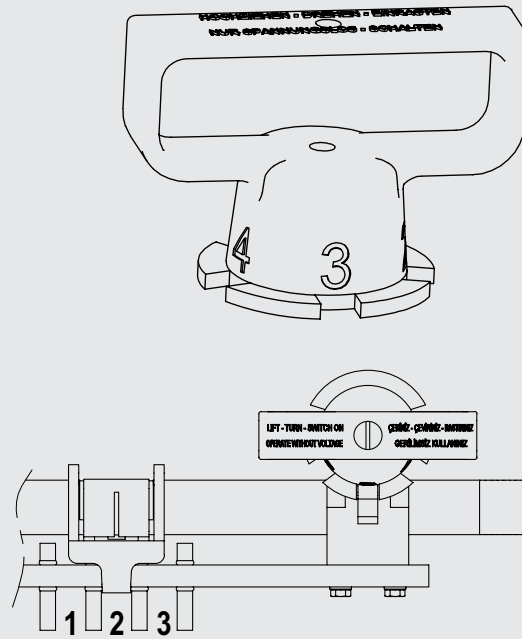
## Type KHZ Threephase Tap Changer

### Handle Directions

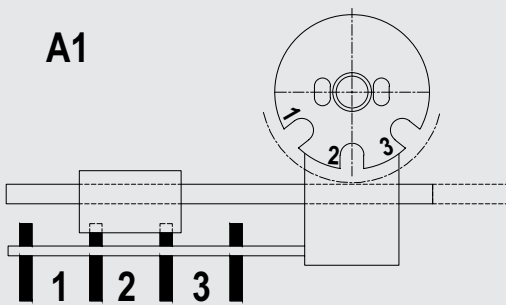
**Handle direction A1**  
Clockwise direction



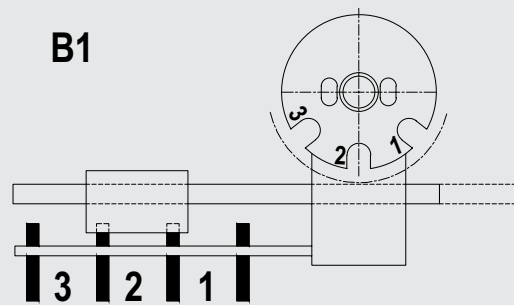
**Handle direction B1**  
Counterclockwise direction



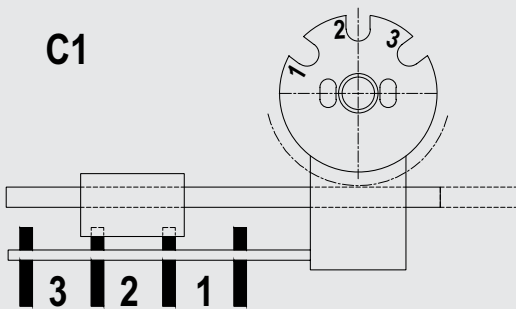
**A1**



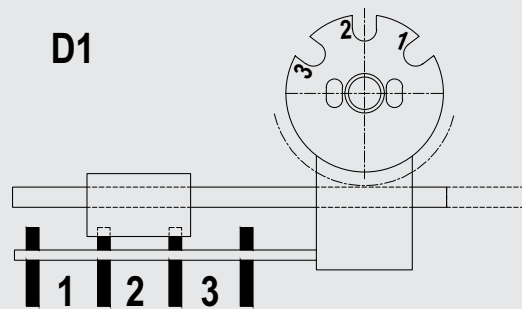
**B1**



**C1**



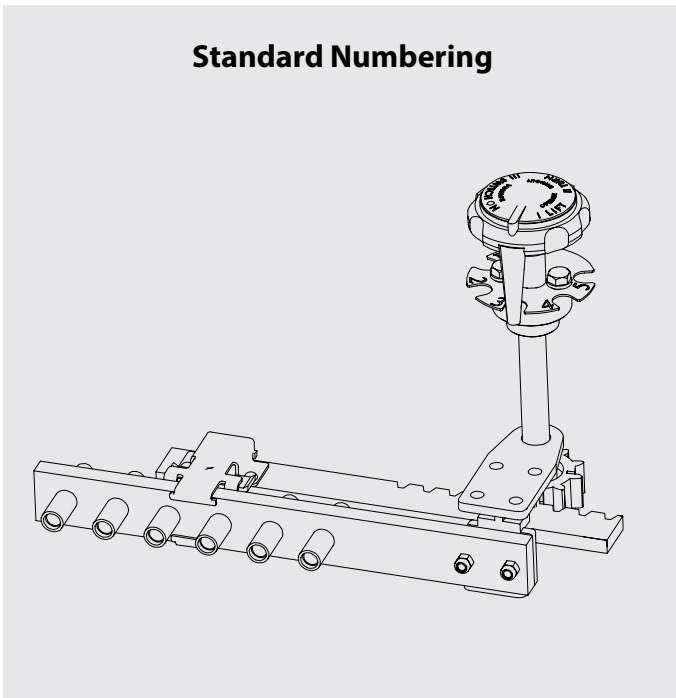
**D1**



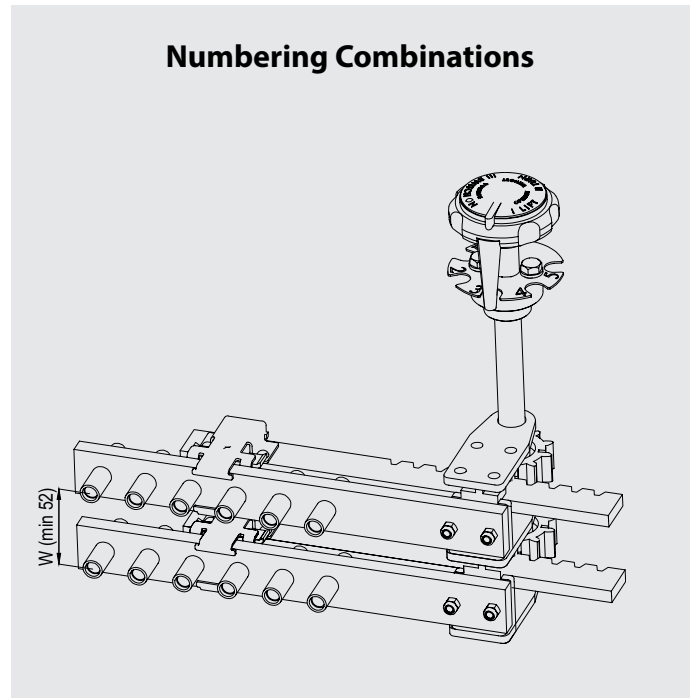
## Type KHZ Threephase Tap Changer

### Numbering Combinations

**Standard Numbering**



**Numbering Combinations**

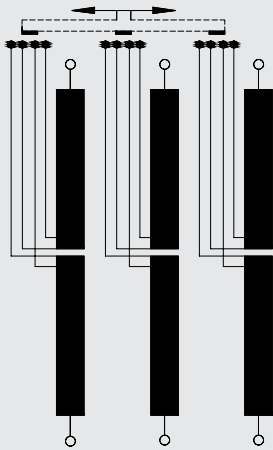


- all MHZ standard horizontal tap changers can be paired by superimposing several tap changers
  - built steel brackets are assembled by nuts and bolts
- depending on which system is adopted, the user can:
- either operate the tap changers with one shaft
  - or operate part of the tap changers with one shaft, and the other part with a second shaft
- the position of the coupling shaft and the position of the setting shaft has to be specified

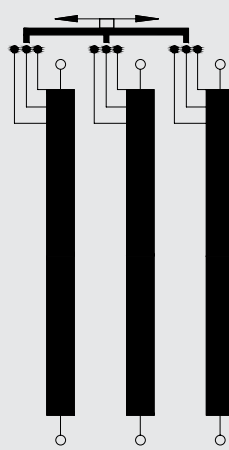
*Note: It is essential, when ordering, to quote dimension „W“ the minimum value of which to be set in each case depends on the insulation conditions and on the position of the different tap changers*

## Type KHZ Threephase Tap Changer

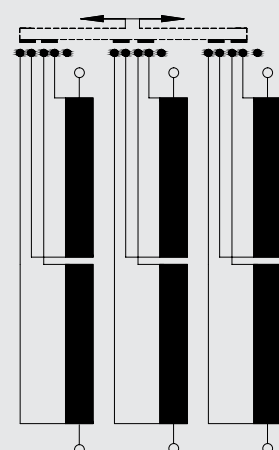
Connection Diagrams



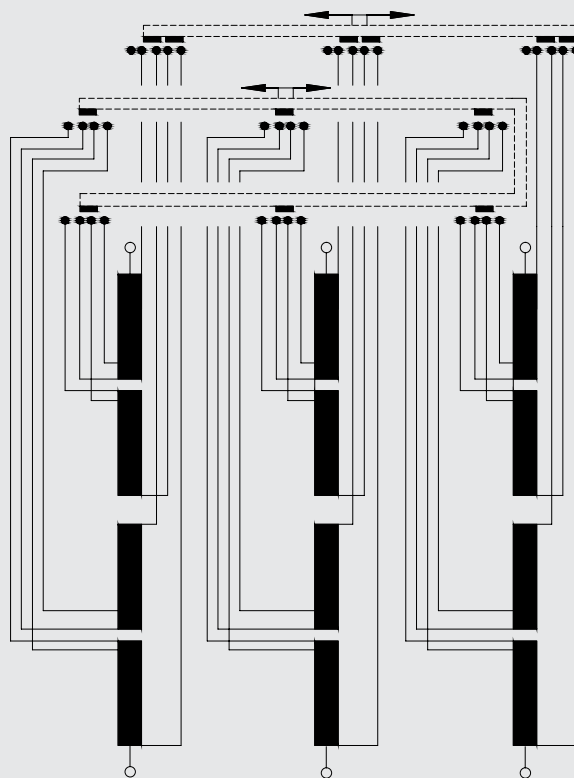
**Setting for delta Transformer**



**Setting for star Transformer**



**Series - parallel coupling**



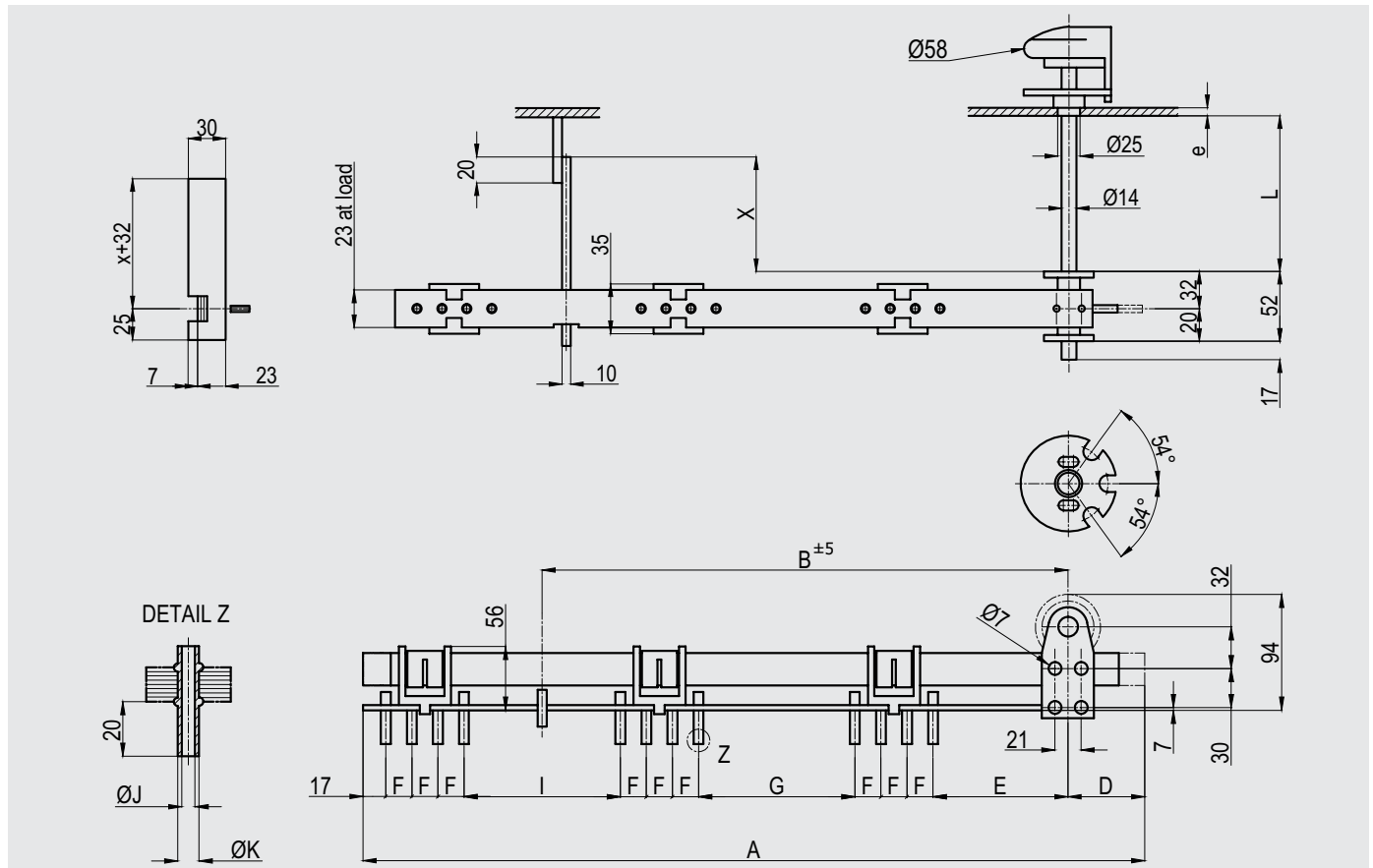
**Typical Combination**

**1 Stage: Series - parallel coupling**

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

## Type KHZ Threephase Tap Changer

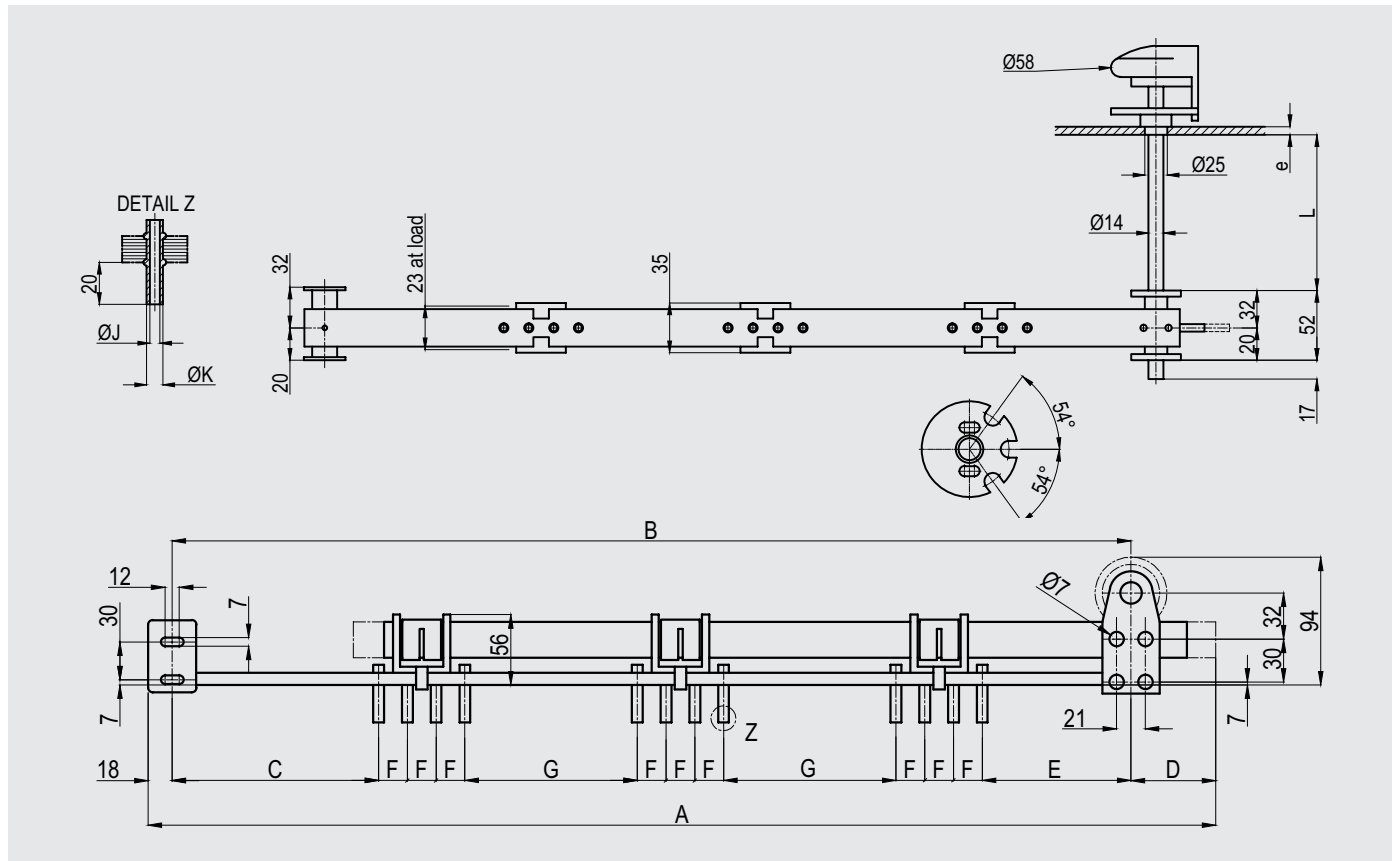
Delta Diagram 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With HP Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)										Unit No 30A J: 3.1 K: 5	Unit No 63A J: 5.1 K: 7
			A	B	D	E	G	F	I	X min	L	e		
10	30 or 63	2	347	212	51	61	42	21	50	48	Please specify when ordering	K233D222	K233D223	
		3	431	254	72	61	42	21	50	48		K233D322	K233D323	
		4	515	296	93	61	42	21	50	48		K233D422	K233D423	
		5	599	338	114	61	42	21	50	48		K233D522	K233D523	
		6	683	380	135	61	42	21	50	48		K233D622	K233D623	
		7	767	422	156	61	42	21	50	48		K233D722	K233D723	
		15	30 or 63	2	384	244	51	76	54	21		60	48	K233D232
3	468			286	72	76	54	21	60	48	K233D332	K233D333		
4	552			328	93	76	54	21	60	48	K233D432	K233D433		
5	636			370	114	76	54	21	60	48	K233D532	K233D533		
6	720			412	135	76	54	21	60	48	K233D632	K233D633		
7	804			454	156	76	54	21	60	48	K233D732	K233D733		
20	30 or 63			2	419	271	51	84	65	21	76	48	K233D242	K233D243
		3	503	313	72	84	65	21	76	48	K233D342	K233D343		
		4	587	355	93	84	65	21	76	48	K233D442	K233D443		
		5	671	397	114	84	65	21	76	48	K233D542	K233D543		
		6	755	439	135	84	65	21	76	48	K233D642	K233D643		
		7	839	481	156	84	65	21	76	48	K233D742	K233D743		
		30	30 or 63	2	499	344	51	125	90	21	90	88	K233D252	K233D253
3	583			386	72	125	90	21	90	88	K233D352	K233D353		
4	667			428	93	125	90	21	90	88	K233D452	K233D453		
5	751			470	114	125	90	21	90	88	K233D552	K233D553		
6	835			512	135	125	90	21	90	88	K233D652	K233D653		
7	919			554	156	125	90	21	90	88	K233D752	K233D753		

## Type KHZ Threephase Tap Changer

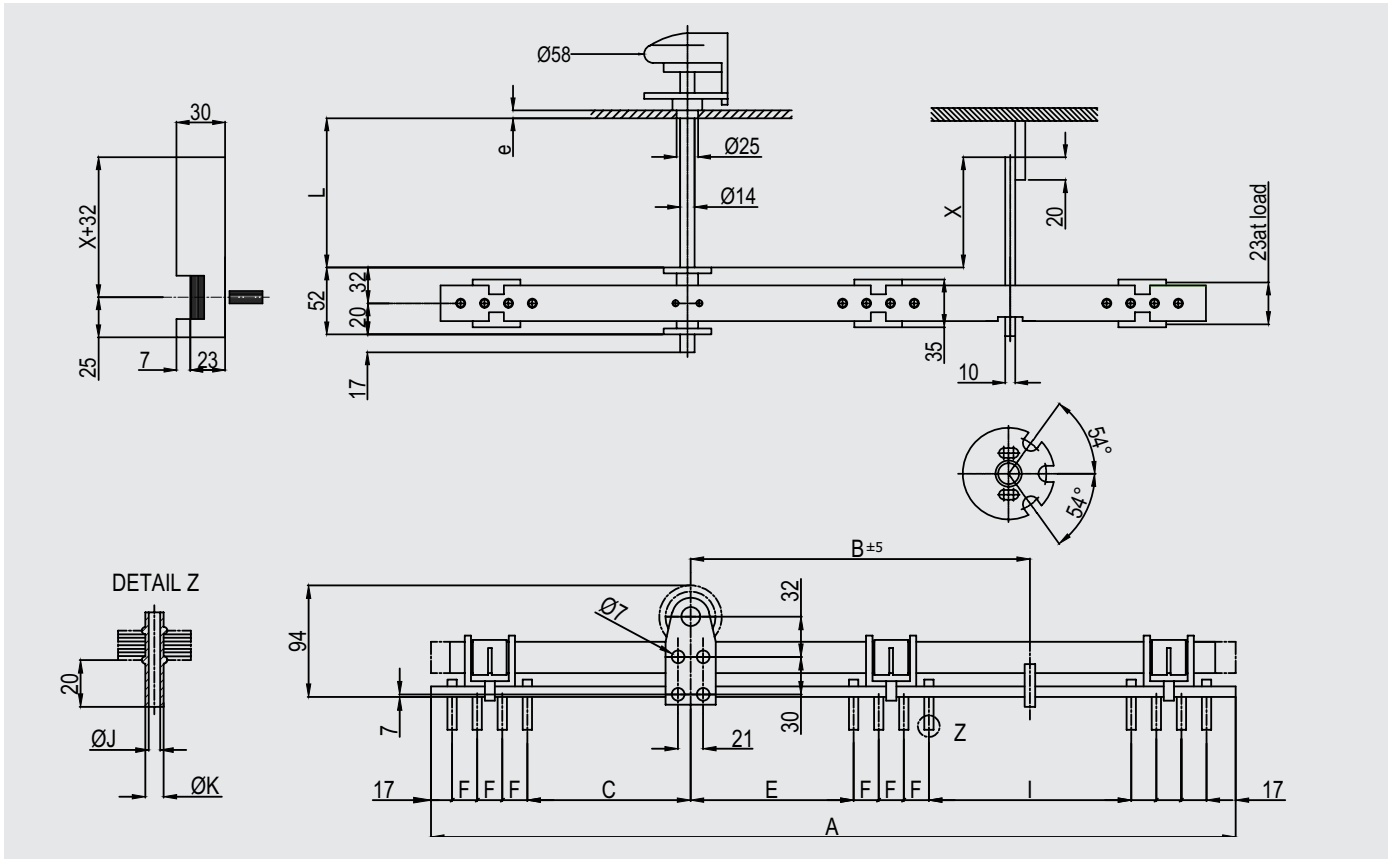
Delta Diagram 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (Without Aluminium Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							L	e	Unit No	
			A	B	C	D	E	F	G			30A J: 3.1 K: 5	63A J: 5.1 K: 7
10	30 or 63	2	393	324	53	51	61	21	42	Please specify when ordering		K231D222	K231D223
		3	477	387	53	72	61	21	42			K231D322	K231D323
		4	561	450	53	93	61	21	42			K231D422	K231D423
		5	645	513	53	114	61	21	42			K231D522	K231D523
		6	729	576	53	135	61	21	42			K231D622	K231D623
		7	813	639	53	156	61	21	42			K231D722	K231D723
		15	30 or 63	2	445	376	66	51	76			21	54
3	529			439	66	72	76	21	54		K231D332	K231D333	
4	613			502	66	93	76	21	54		K231D432	K231D433	
5	697			565	66	114	76	21	54		K231D532	K231D533	
6	781			628	66	135	76	21	54		K231D632	K231D633	
7	865			691	66	156	76	21	54		K231D732	K231D733	
20	30 or 63			2	485	416	76	51	84		21	65	K231D242
		3	569	479	76	72	84	21	65		K231D342	K231D343	
		4	653	542	76	93	84	21	65	K231D442	K231D443		
		5	737	605	76	114	84	21	65	K231D542	K231D543		
		6	821	668	76	135	84	21	65	K231D642	K231D643		
		7	905	731	76	156	84	21	65	K231D742	K231D743		
		30	30 or 63	2	617	548	117	51	125	21	90	K231D252	K231D253
3	701			611	117	72	125	21	90	K231D352	K231D353		
4	785			674	117	93	125	21	90	K231D452	K231D453		
5	869			737	117	114	125	21	90	K231D552	K231D553		
6	953			800	117	135	125	21	90	K231D652	K231D653		
7	1037			863	117	156	125	21	90	K231D752	K231D753		

## Type KHZ Threephase Tap Changer

Delta Diagram 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (Without Aluminium Support)

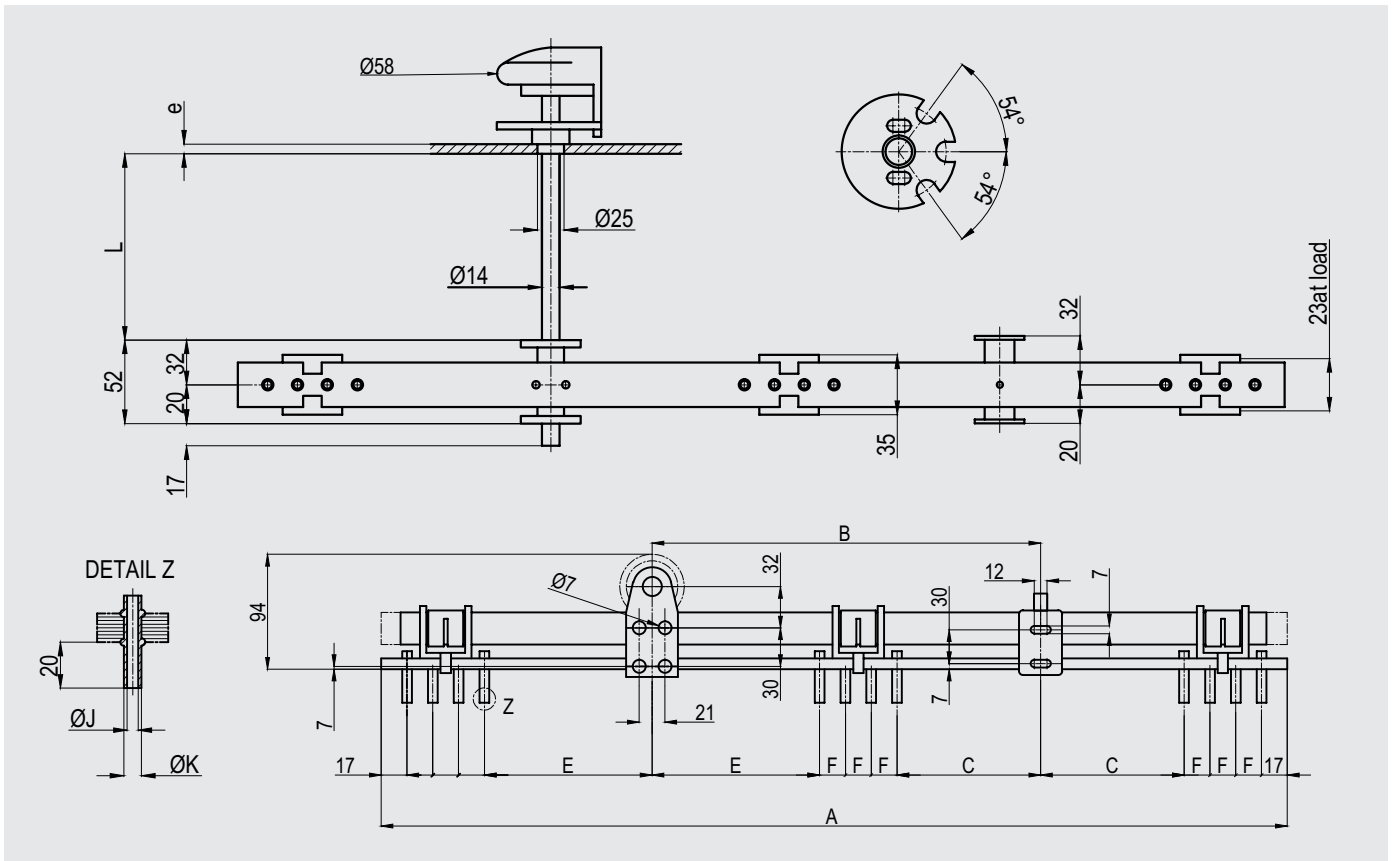


Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							X min	L	e	Unit No	
			A	B	C	E	F	I	30A J: 3.1 K: 5				63A J: 5.1 K: 7	
10	30 or 63	2	332	128	61	61	21	50	48	Please specify when ordering	K235D222	K235D223		
		3	395	149	61	61	21	50	48		K235D322	K235D323		
		4	458	170	61	61	21	50	48		K235D422	K235D423		
		5	521	191	61	61	21	50	48		K235D522	K235D523		
		6	584	212	61	61	21	50	48		K235D622	K235D623		
		7	647	233	61	61	21	50	48		K235D722	K235D723		
		15	30 or 63	2	372	148	76	76	21		60	48	K235D232	K235D233
3	435			169	76	76	21	60	48		K235D332	K235D333		
4	498			190	76	76	21	60	48		K235D432	K235D433		
5	561			211	76	76	21	60	48		K235D532	K235D533		
6	624			232	76	76	21	60	48		K235D632	K235D633		
7	687			253	76	76	21	60	48		K235D732	K235D733		
20	30 or 63			2	404	164	84	84	21		76	48	K235D242	K235D243
		3	467	185	84	84	21	76	48		K235D342	K235D343		
		4	530	206	84	84	21	76	48	K235D442	K235D443			
		5	593	227	84	84	21	76	48	K235D542	K235D543			
		6	656	248	84	84	21	76	48	K235D642	K235D643			
		7	719	269	84	84	21	76	48	K235D742	K235D743			
		30	30 or 63	2	500	212	125	125	21	90	88	K235D252	K235D253	
3	563			233	125	125	21	90	88	K235D352	K235D353			
4	626			254	125	125	21	90	88	K235D452	K235D453			
5	689			275	125	125	21	90	88	K235D552	K235D553			
6	752			296	125	125	21	90	88	K235D652	K235D653			
7	815			317	125	125	21	90	88	K235D752	K235D753			



## Type KHZ Threephase Tap Changer

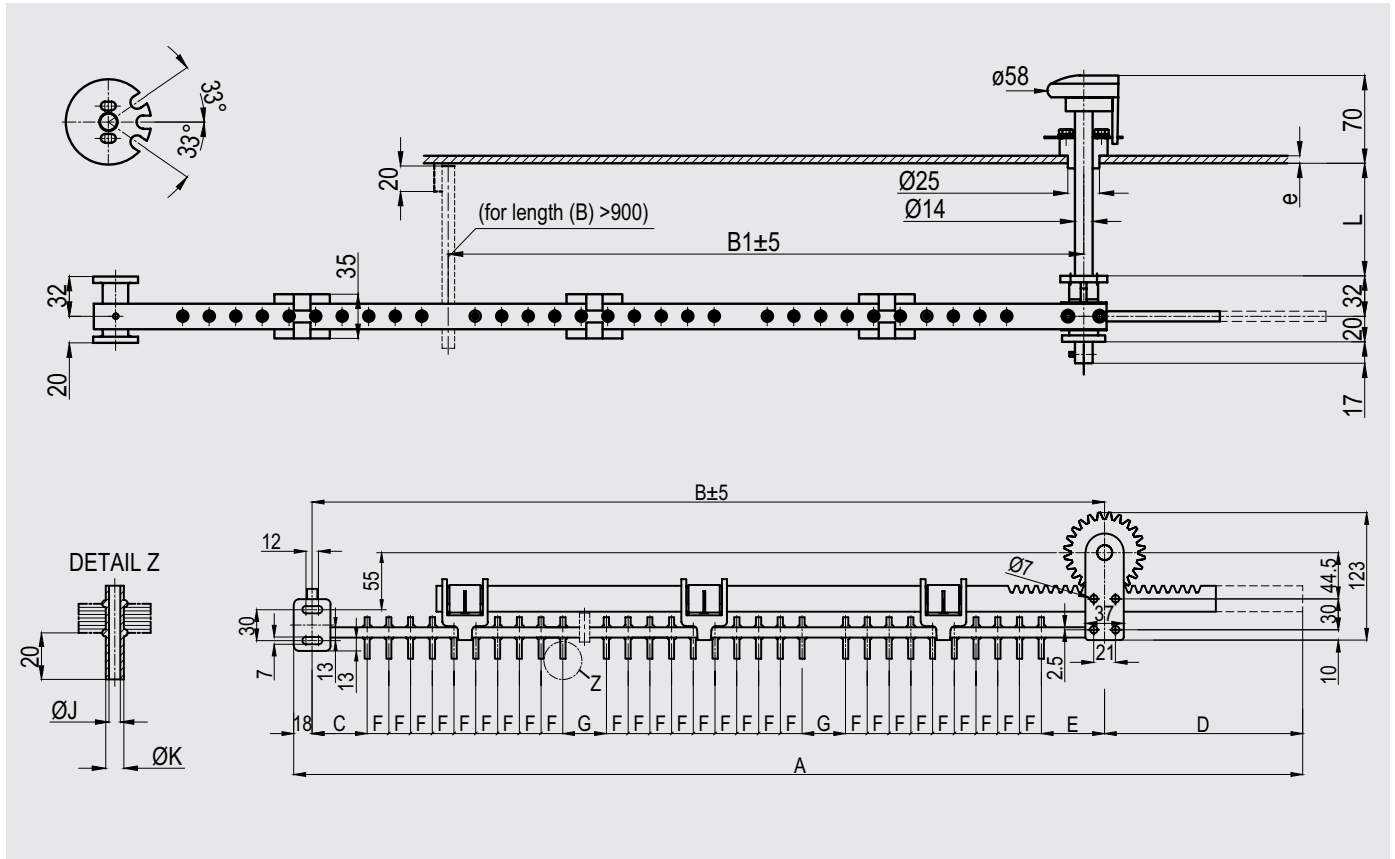
Delta Diagram 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	A	B	C	E	F	L	e	Unit No	
										30A J: 3,1 K: 5	63A J: 5,1 K: 7
10	30 or 63	2	388	156	53	61	21	Please specify when ordering		K234D222	K234D223
		3	451	177	53	61	21			K234D322	K234D323
		4	514	198	53	61	21			K234D422	K234D423
		5	577	219	53	61	21			K234D522	K234D523
		6	640	240	53	61	21			K234D622	K234D623
		7	703	261	53	61	21			K234D722	K234D723
		15	30 or 63	2	444	184	66			76	21
3	507			205	66	76	21			K234D332	K234D333
4	570			226	66	76	21			K234D432	K234D433
5	633			247	66	76	21			K234D532	K234D533
6	696			268	66	76	21			K234D632	K234D633
7	759			289	66	76	21			K234D732	K234D733
20	30 or 63			2	480	202	76			84	21
		3	543	223	76	84	21			K234D342	K234D343
		4	606	244	76	84	21	K234D442	K234D443		
		5	669	265	76	84	21	K234D542	K234D543		
		6	732	286	76	84	21	K234D642	K234D643		
		7	795	307	76	84	21	K234D742	K234D743		
		30	30 or 63	2	644	284	117	125	21	K234D252	K234D253
3	707			305	117	125	21	K234D352	K234D353		
4	770			326	117	125	21	K234D452	K234D453		
5	833			347	117	125	21	K234D552	K234D553		
6	896			368	117	125	21	K234D652	K234D653		
7	959			389	117	125	21	K234D752	K234D753		

## Type KHZ Threephase Tap Changer

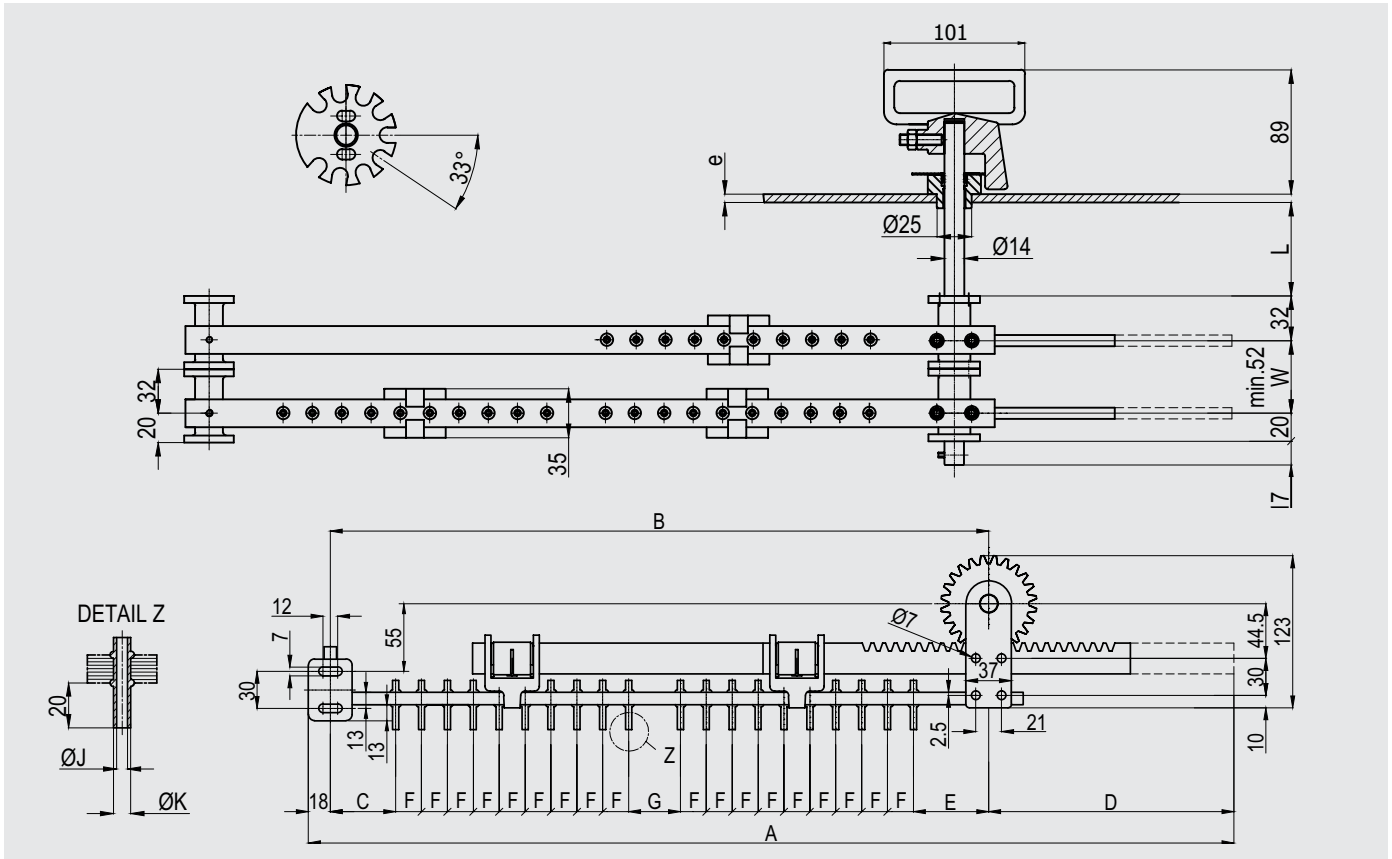
Delta Diagram 10 - 30 kV / 30 - 63 A / 8 - 11 Positions / Setting 2.5 % per Position (With HP Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)										Unit No 30A J: 3,1 K: 5		Unit No 63A J: 5,1 K: 7	
			A	B	B1	C	D	E	F	G	L	e				
10	30 or 63	8	902	762	-	53	182	61	21	42	Please specify when ordering	K231D822	K231D823			
		9	986	765	-	53	203	61	21	42		K231D922	K231D923			
		10	1070	828	-	53	224	61	21	42		K231D1022	K231D1023			
		11	1154	891	-	53	245	61	21	42		K231D1122	K231D1123			
15	30 or 63	8	954	754	-	66	182	76	21	54		K231D832	K231D833			
		9	1038	817	-	66	203	76	21	54		K231D932	K231D933			
		10	1122	880	-	66	224	76	21	54		K231D1032	K231D1033			
		11	1206	943	619	66	245	76	21	54		K231D1132	K231D1133			
20	30 or 63	8	994	794	-	76	182	84	21	65		K231D842	K231D843			
		9	1078	857	-	76	203	84	21	65		K231D942	K231D943			
		10	1162	920	601	76	224	84	21	65		K231D1042	K231D1043			
		11	1246	983	643	76	245	84	21	65	K231D1142	K231D1143				
30	30 or 63	8	1126	926	596	117	182	125	21	90	K231D852	K231D853				
		9	1210	989	638	117	203	125	21	90	K231D952	K231D953				
		10	1294	1052	680	117	224	125	21	90	K231D1052	K231D1053				
		11	1378	1115	722	117	245	125	21	90	K231D1152	K231D1153				

## Type KHZ Threephase Tap Changer

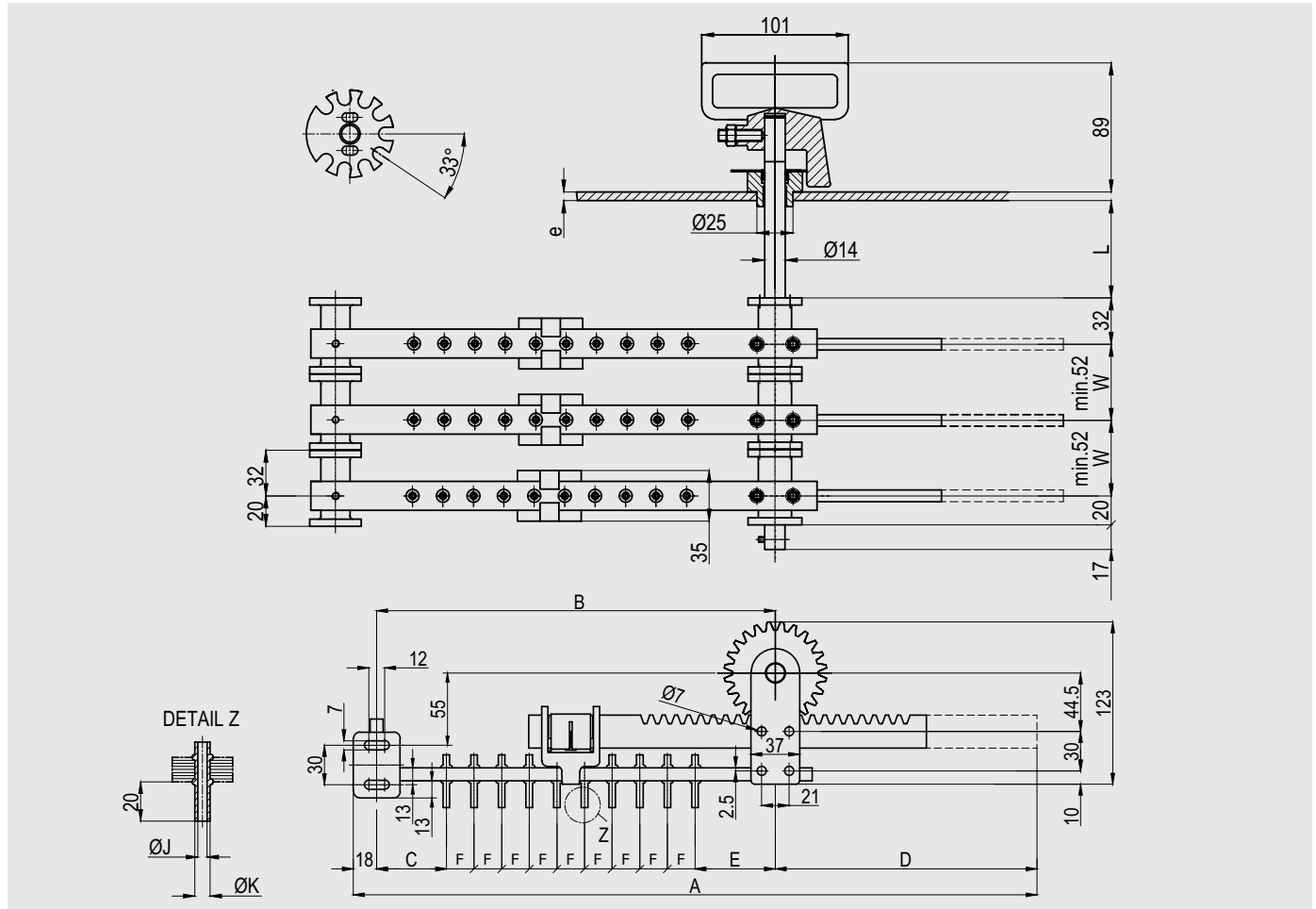
Delta Diagram 10 - 30 kV / 30 - 63 A / 8 - 11 Positions / Special Diagram / Setting 2.5 % per Position  
(With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							L	e	W	Unit No	
			A	B	C	D	E	F	G				30A J: 3, 1 K: 5	63A J: 5, 1 K: 7
10	30 or 63	8	692	492	53	182	61	21	42	Please specify when ordering	K271D822 K271D922 K271D1022 K271D1122	K271D823 K271D923 K271D1023 K271D1123		
		9	755	534	53	203	61	21	42					
		10	818	576	53	224	61	21	42					
		11	881	618	53	245	61	21	42					
15	30 or 63	8	732	532	66	182	76	21	54		K271D832 K271D932 K271D1032 K271D1132	K271D833 K271D933 K271D1033 K271D1133		
		9	795	574	66	203	76	21	54					
		10	858	616	66	224	76	21	54					
		11	921	658	66	245	76	21	54					
20	30 or 63	8	761	561	76	182	84	21	65		K271D842 K271D942 K271D1042 K271D1142	K271D843 K271D943 K271D1043 K271D1143		
		9	824	603	76	203	84	21	65					
		10	887	645	76	224	84	21	65					
		11	950	687	76	245	84	21	65					
30	30 or 63	8	868	668	117	182	125	21	90	K271D852 K271D952 K271D1052 K271D1152	K271D853 K271D953 K271D1053 K271D1153			
		9	931	710	117	203	125	21	90					
		10	994	752	117	224	125	21	90					
		11	1057	794	117	245	125	21	90					

## Type KHZ Threephase Tap Changer

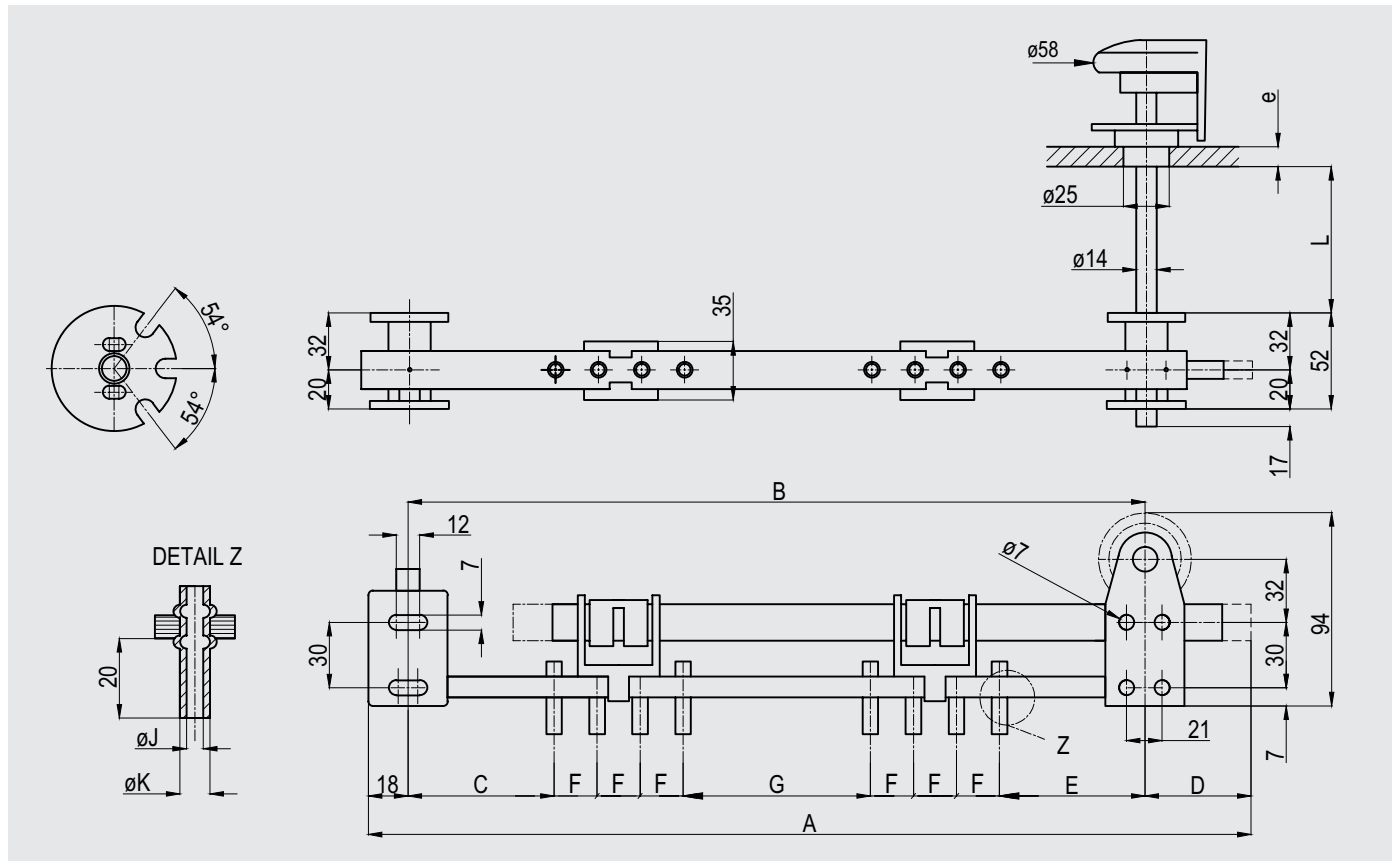
Delta Diagram 10 - 30 kV / 30 - 63 A / 8 - 11 Positions / Special Diagram / Setting 2.5 % per Position  
(With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							Please specify when ordering			Unit No 30A J: 3,1 K: 5		Unit No 63A J: 5,1 K: 7	
			A	B	C	D	E	F	L	e	W					
10	30 or 63	8	476	282	53	182	61	21	Please specify when ordering			K281D822	K281D823			
		9	524	303	53	203	61	21				K281D922	K281D923			
		10	572	324	53	224	61	21				K281D1022	K281D1023			
		11	620	345	53	245	61	21				K281D1122	K281D1123			
15	30 or 63	8	510	310	66	182	76	21				K281D832	K281D833			
		9	558	331	66	203	76	21				K281D932	K281D933			
		10	606	352	66	224	76	21				K281D1032	K281D1033			
		11	654	373	66	245	76	21				K281D1132	K281D1133			
20	30 or 63	8	528	328	76	182	84	21				K281D842	K281D843			
		9	576	349	76	203	84	21				K281D942	K281D943			
		10	624	370	76	224	84	21				K281D1042	K281D1043			
		11	672	391	76	245	84	21	K281D1142	K281D1143						
30	30 or 63	8	610	410	117	182	125	21	K281D852	K281D853						
		9	658	431	117	203	125	21	K281D952	K281D953						
		10	706	452	117	224	125	21	K281D1052	K281D1053						
		11	754	473	117	245	125	21	K281D1152	K281D1153						

## Type KHZ Twophase Tap Changer

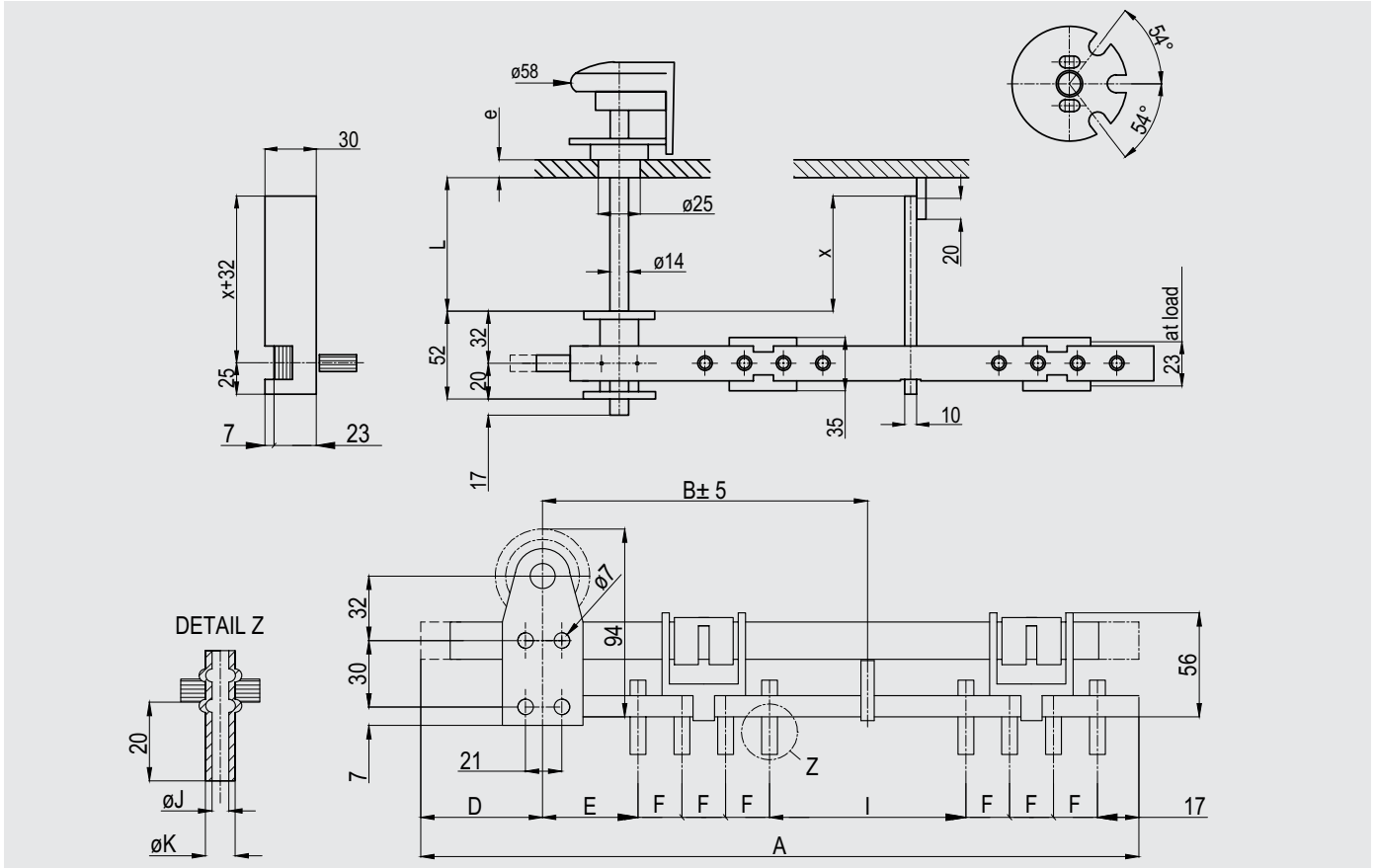
Delta Diagram / 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)								Unit No		
			A	B	C	D	E	F	G	L	e	30A J: 3.1 K: 5	63A J: 5.1 K: 7
10	30 or 63	2	309	240	53	51	61	21	42	Please specify when ordering		K221D222	K221D223
		3	372	282	53	72	61	21	42			K221D322	K221D323
		4	435	324	53	93	61	21	42			K221D422	K221D423
		5	498	366	53	114	61	21	42			K221D522	K221D523
		6	561	408	53	135	61	21	42			K221D622	K221D623
		7	624	450	53	156	61	21	42			K221D722	K221D723
		15	30 or 63	2	349	280	66	51	76			21	54
3	412			322	66	72	76	21	54			K221D332	K221D333
4	475			364	66	93	76	21	54			K221D432	K221D433
5	538			406	66	114	76	21	54			K221D532	K221D533
6	601			448	66	135	76	21	54			K221D632	K221D633
7	664			490	66	156	76	21	54			K221D732	K221D733
20	30 or 63			2	378	309	76	51	84			21	65
		3	441	351	76	72	84	21	65			K221D342	K221D343
		4	504	393	76	93	84	21	65	K221D442	K221D443		
		5	567	435	76	114	84	21	65	K221D542	K221D543		
		6	630	477	76	135	84	21	65	K221D642	K221D643		
		7	693	519	76	156	84	21	65	K221D742	K221D743		
		30	30 or 63	2	485	416	117	51	125	21	90	K221D252	K221D253
3	548			458	117	72	125	21	90	K221D352	K221D353		
4	611			500	117	93	125	21	90	K221D452	K221D453		
5	674			542	117	114	125	21	90	K221D552	K221D553		
6	737			584	117	135	125	21	90	K221D652	K221D653		
7	800			626	117	156	125	21	90	K231D752	K221D753		

## Type KHZ Twophase Tap Changer

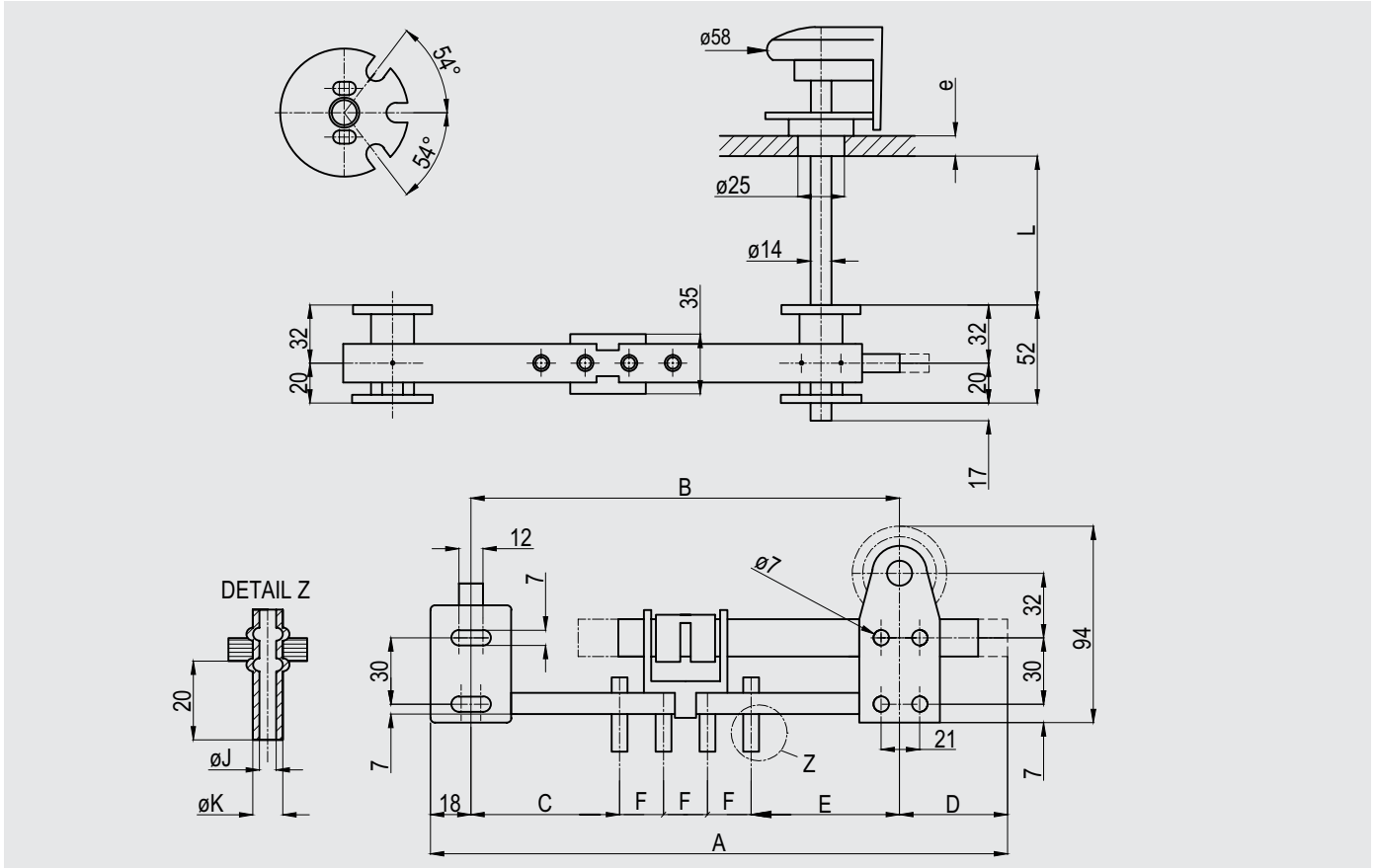
Delta Diagram / 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With HP Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							X min	L	e	Unit No	
			A	B	D	E	F	I	30A J: 3.1 K: 5				63A J: 5.1 K: 7	
10	30 or 63	2	257	128	45	61	21	50	48	Please specify when ordering	K223D222L	K223D223L		
		3	320	149	66	61	21	50	48		K223D322L	K223D323L		
		4	383	170	87	61	21	50	48		K223D422L	K223D423L		
		5	446	191	108	61	21	50	48		K223D522L	K223D523L		
		6	509	212	129	61	21	50	48		K223D622L	K223D623L		
		7	572	233	150	61	21	50	48		K223D722L	K223D723L		
		15	30 or 63	2	282	148	45	76	21		60	48	K223D232L	K223D233L
3	345			169	66	76	21	60	48		K223D332L	K223D333L		
4	408			190	87	76	21	60	48		K223D432L	K223D433L		
5	471			211	108	76	21	60	48		K223D532L	K223D533L		
6	534			232	129	76	21	60	48		K223D632L	K223D633L		
7	597			253	150	76	21	60	48		K223D732L	K223D733L		
20	30 or 63			2	306	164	45	84	21		76	48	K223D242L	K223D243L
		3	369	185	66	84	21	76	48		K223D342L	K223D343L		
		4	432	206	87	84	21	76	48	K223D442L	K223D443L			
		5	495	227	108	84	21	76	48	K223D542L	K223D543L			
		6	558	248	129	84	21	76	48	K223D642L	K223D643L			
		7	621	269	150	84	21	76	48	K223D742L	K223D743L			
		30	30 or 63	2	361	212	45	125	21	90	88	K223D252L	K223D253L	
3	424			233	66	125	21	90	88	K223D352L	K223D353L			
4	487			254	87	125	21	90	88	K223D452L	K223D453L			
5	550			271	108	125	21	90	88	K223D552L	K223D553L			
6	613			296	129	125	21	90	88	K223D652L	K223D653L			
7	676			317	150	125	21	90	88	K223D752L	K223D753L			

## Type KHZ Monophase Tap Changer

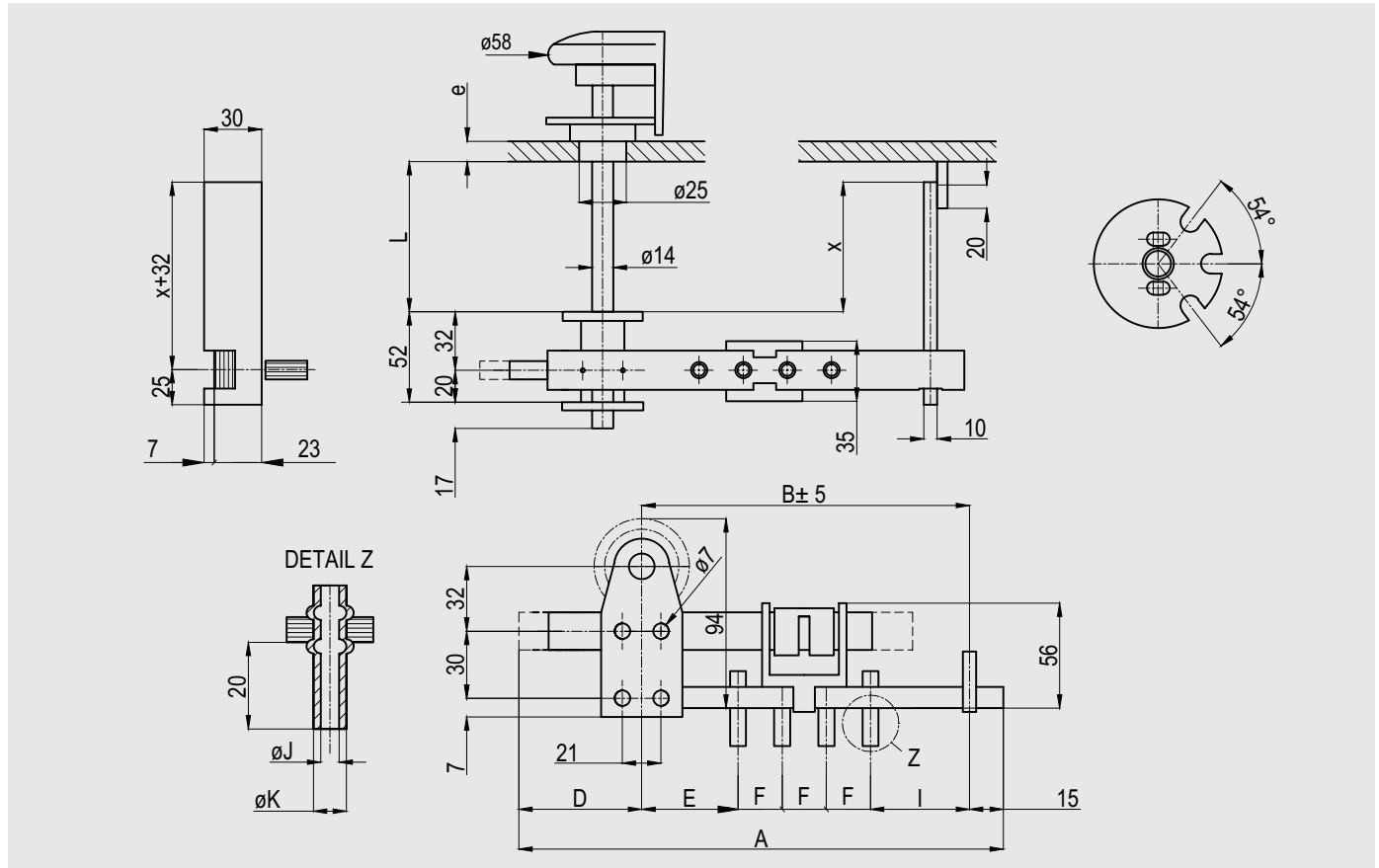
Delta Diagram / 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							Please specify when ordering		Unit No 30A J: 3.1 K: 5	Unit No 63A J: 5.1 K: 7
			A	B	C	D	E	F	L	e			
10	30 or 63	2	225	156	53	51	61	21	Please specify when ordering			K211D222	K211D223
		3	267	177	53	72	61	21				K211D322	K211D323
		4	309	198	53	93	61	21				K211D422	K211D423
		5	351	219	53	114	61	21				K211D522	K211D523
		6	393	240	53	135	61	21				K211D622	K211D623
		7	435	261	53	156	61	21				K211D722	K211D723
		15	30 or 63	2	253	184	66	51				76	21
3	295			205	66	72	76	21	K211D332	K211D333			
4	337			226	66	93	76	21	K211D432	K211D433			
5	379			247	66	114	76	21	K211D532	K211D533			
6	421			268	66	135	76	21	K211D632	K211D633			
7	463			289	66	156	76	21	K211D732	K211D733			
20	30 or 63			2	271	202	76	51	84	21	Please specify when ordering		
		3	313	223	76	72	84	21	K211D342	K211D343			
		4	355	244	76	93	84	21	K211D442	K211D443			
		5	397	265	76	114	84	21	K211D542	K211D543			
		6	439	286	76	135	84	21	K211D642	K211D643			
		7	481	307	76	156	84	21	K211D742	K211D743			
		30	30 or 63	2	353	284	117	51	125	21			
3	395			305	117	72	125	21	K211D352	K211D353			
4	437			326	117	93	125	21	K211D452	K211D453			
5	479			347	117	114	125	21	K211D552	K211D553			
6	521			368	117	135	125	21	K211D652	K211D653			
7	563			389	117	156	125	21	K211D752	K211D753			

## Type KHZ Monophase Tap Changer

Delta Diagram / 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With HP Support)

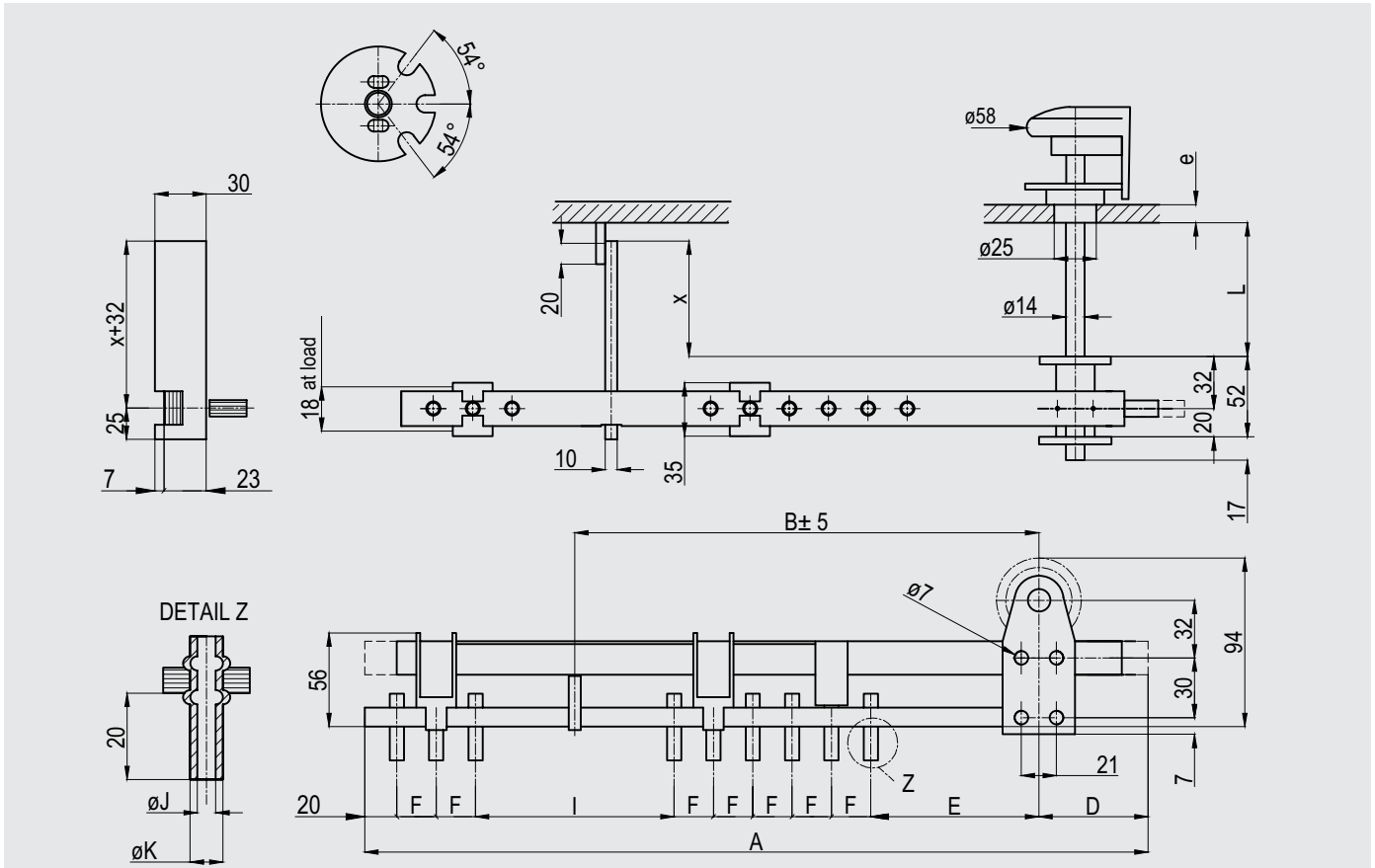


Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							X min	L	e	Unit No	
			A	B	D	E	I	F	30A J: 3.1 K: 5				63A J: 5.1 K: 7	
10	30 or 63	2	188	128	45	61	25	21	48	Please specify when ordering	217D222	217D223		
		3	230	149	66	61	25	21	48		217D322	217D323		
		4	272	170	87	61	25	21	48		217D422	217D423		
		5	314	191	108	61	25	21	48		217D522	217D523		
		6	356	212	129	61	25	21	48		217D622	217D623		
		7	398	233	150	61	25	21	48		217D722	217D723		
		15	30 or 63	2	208	148	45	76	30		21	48	217D232	217D233
3	250			169	66	76	30	21	48		217D332	217D333		
4	292			190	87	76	30	21	48		217D432	217D433		
5	334			211	108	76	30	21	48		217D532	217D533		
6	376			232	129	76	30	21	48		217D632	217D633		
7	418			253	150	76	30	21	48		217D732	217D733		
20	30 or 63			2	224	164	45	84	38		21	48	217D242	217D243
		3	266	185	66	84	38	21	48		217D342	217D343		
		4	308	206	87	84	38	21	48	217D442	217D443			
		5	350	227	108	84	38	21	48	217D542	217D543			
		6	392	248	129	84	38	21	48	217D642	217D643			
		7	434	269	150	84	38	21	48	217D742	217D743			
		30	30 or 63	2	272	212	45	125	45	21	88	217D252	217D253	
3	314			233	66	125	45	21	88	217D352	217D353			
4	356			254	87	125	45	21	88	217D452	217D453			
5	398			275	108	125	45	21	88	217D552	217D553			
6	440			296	129	125	45	21	88	217D652	217D653			
7	482			317	150	125	45	21	88	217D752	217D753			



## Type KHZ Threephase Tap Changer

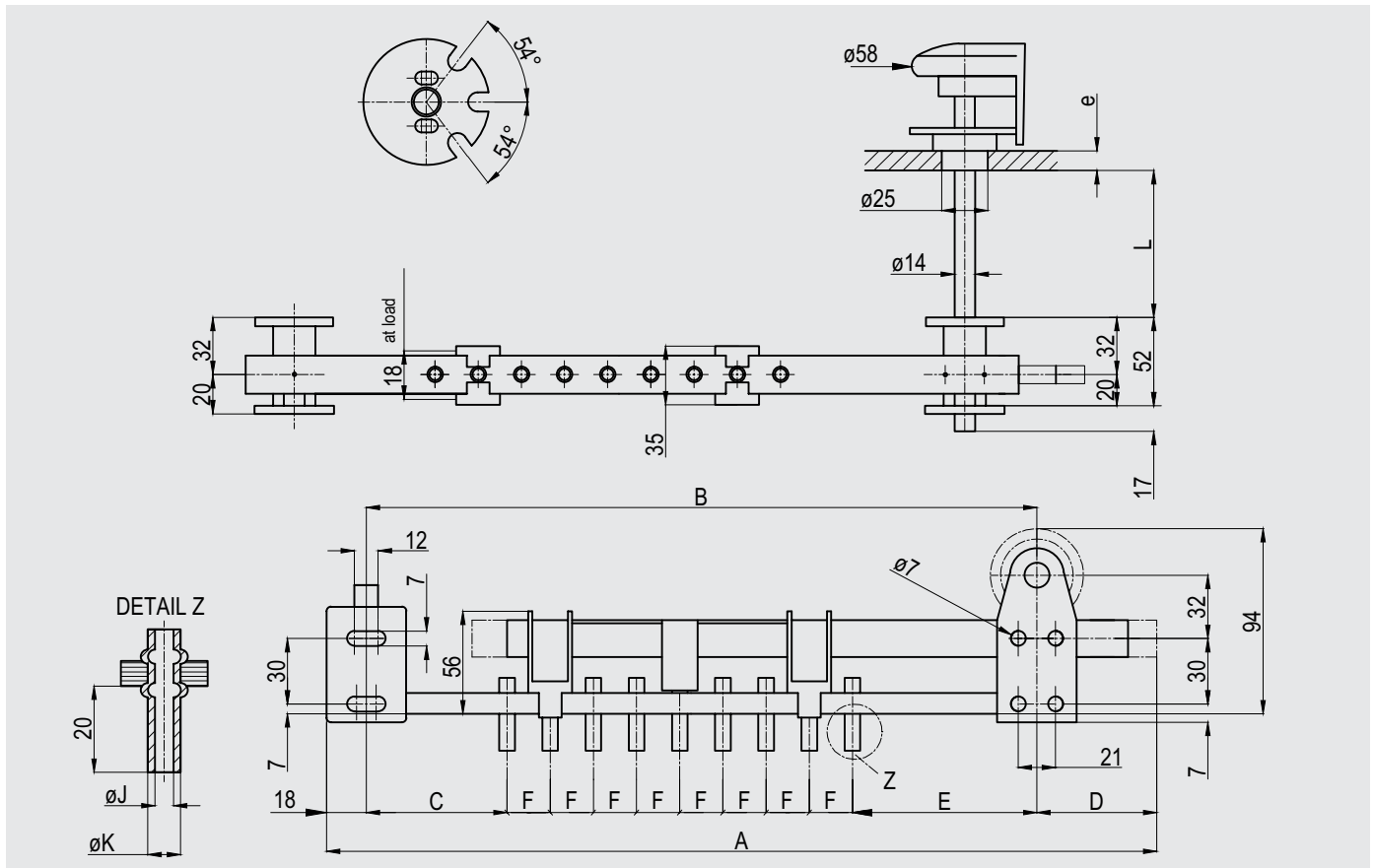
Star Diagram / 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With HP Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							X min	L	e	Unit No	
			A	B	D	E	I	F	30A J: 3.1 K: 5				63A J: 5.1 K: 7	
10	30 or 63	2	266	149	51	61	50	21	48	Please specify when ordering			K233S222	K233S223
		3	350	191	72	61	50	21	48				K233S322	K233S323
		4	434	233	93	61	50	21	48				K233S422	K233S423
		5	518	275	114	61	50	21	48				K233S522	K233S523
		6	602	317	135	61	50	21	48				K233S622	K233S623
		7	686	359	156	61	50	21	48				K233S722	K233S723
		15	30 or 63	2	281	164	51	76	50				21	48
3	365			206	72	76	50	21	48	K233S332	K233S333			
4	449			248	93	76	50	21	48	K233S432	K233S433			
5	533			290	114	76	50	21	48	K233S532	K233S533			
6	617			332	135	76	50	21	48	K233S632	K233S633			
7	701			374	156	76	50	21	48	K233S732	K233S733			
20	30 or 63			2	289	172	51	84	50	21	48	Please specify when ordering		
		3	373	214	72	84	50	21	48	K233S342	K233S343			
		4	457	256	93	84	50	21	48	K233S442	K233S443			
		5	541	298	114	84	50	21	48	K233S542	K233S543			
		6	625	340	135	84	50	21	48	K233S642	K233S643			
		7	709	382	156	84	50	21	48	K233S742	K233S743			
		30	30 or 63	2	330	213	51	125	50	21	88			
3	414			255	72	125	50	21	88	K233S352	K233S353			
4	498			297	93	125	50	21	88	K233S452	K233S453			
5	582			339	114	125	50	21	88	K233S552	K233S553			
6	666			381	135	125	50	21	88	K233S652	K233S653			
7	750			423	156	125	50	21	88	K233S752	K233S753			

### Type KHZ Threephase Tap Changer

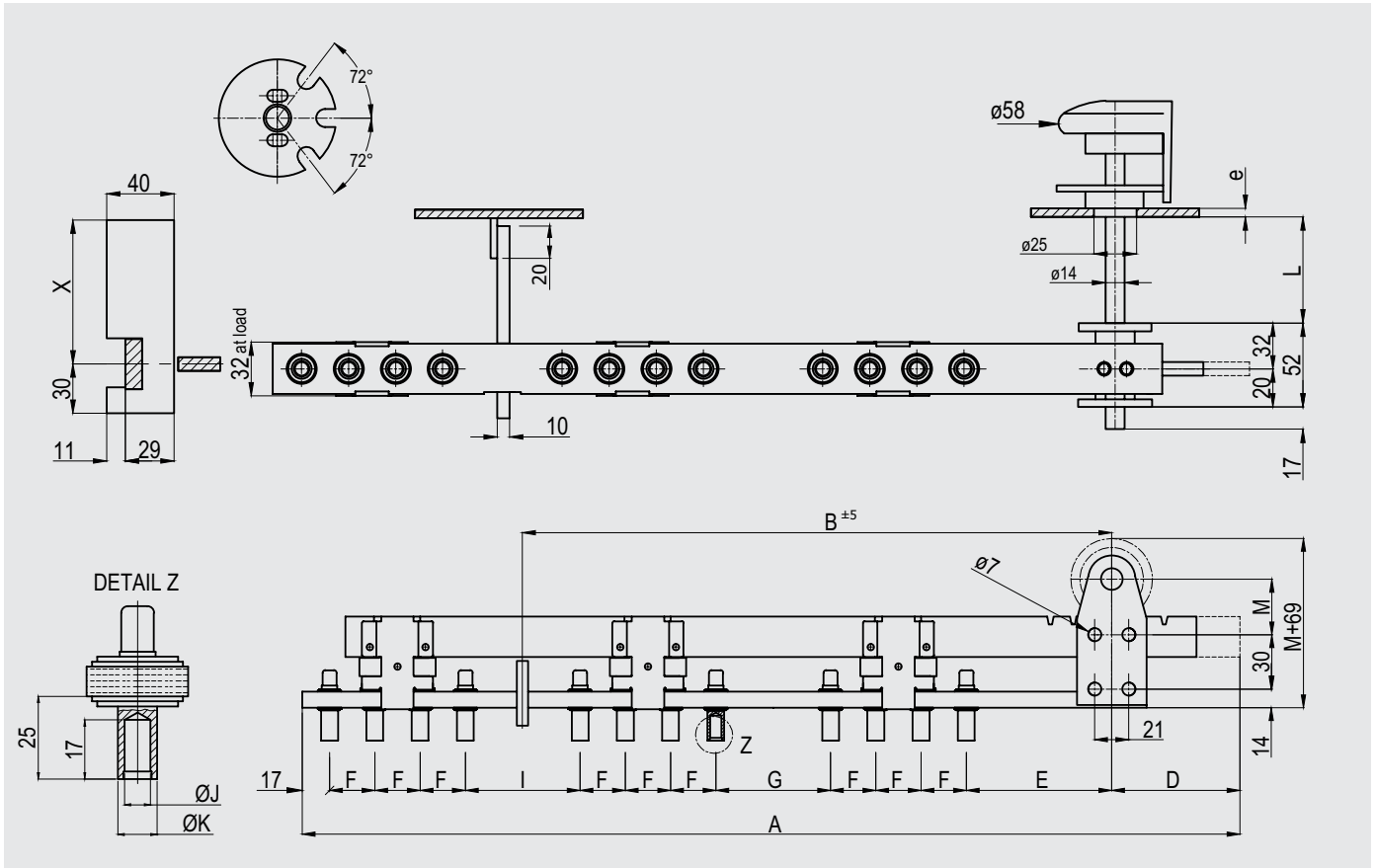
Star Diagram / 10 - 30 kV / 30 - 63 A / 2 - 7 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	Dimensions (mm)							L		Unit No 30A J: 3.1 K: 5	Unit No 63A J: 5.1 K: 7
			A	B	C	D	E	F	L	e			
10	30 or 63	2	288	219	53	51	61	21	Please specify when ordering			K231S222	K231S223
		3	372	282	53	72	61	21				K231S322	K231S323
		4	456	345	53	93	61	21				K231S422	K231S423
		5	540	408	53	114	61	21				K231S522	K231S523
		6	624	471	53	135	61	21				K231S622	K231S623
		7	708	534	53	156	61	21				K231S722	K231S723
		20	30 or 63	2	334	265	76	51				84	21
3	418			328	76	72	84	21				K231S342	K231S343
4	502			391	76	93	84	21				K231S442	K231S443
5	586			454	76	114	84	21				K231S542	K231S543
6	670			517	76	135	84	21				K231S642	K231S643
7	754			580	76	156	84	21				K231S742	K231S743
30	30 or 63			2	416	347	117	51				125	21
		3	500	410	117	72	125	21				K231S352	K231S353
		4	584	473	117	93	125	21				K231S452	K231S453
		5	668	536	117	114	125	21				K231S552	K231S553
		6	752	599	117	135	125	21				K231S652	K231S653
		7	836	662	117	156	125	21				K231S752	K231S753

## Type KHZ Threephase Tap Changer

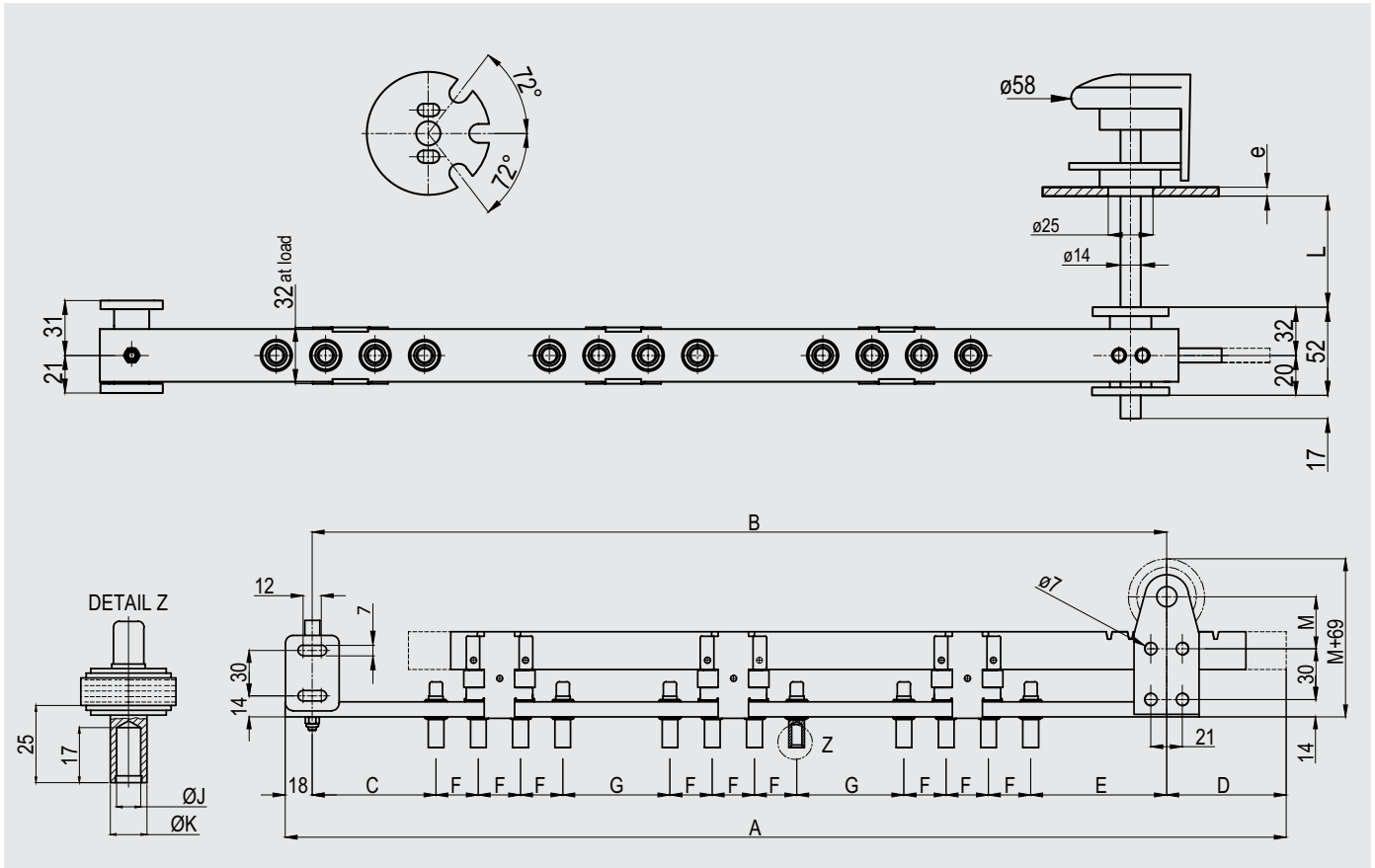
Delta Diagram / 10 - 30 kV / 120 A / 2 - 5 Positions / Setting 2.5 % per Position (With HP Support)



Voltage Class kV	Current A	Number of Positions	A	B	D	E	G	I	F	X min	M	L	e	Unit No 120 A J: 8.1 K: 12
10	120	2	406	251	58	67	48	48	28	48	32	Please specify when ordering	K233D224 K233D324 K233D424 K233D524	
		3	518	307	86	67	48	48	28	48	32			
		4	630	363	114	67	48	48	28	48	32			
		5	742	419	142	67	48	48	28	48	32			
20	120	2	475	308	58	90	71	71	28	48	32		K233D244 K233D344 K233D444 K233D544	
		3	587	364	86	90	71	71	28	48	32			
		4	699	420	114	90	71	71	28	48	32			
		5	811	476	142	90	71	71	28	48	32			
30	120	2	563	384	58	130	95	95	28	88	32		K233D254 K233D354 K233D454 K233D554	
		3	675	440	86	130	95	95	28	88	32			
		4	787	496	114	130	95	95	28	88	32			
		5	899	552	142	130	95	95	28	88	32			

## Type KHZ Threephase Tap Changer

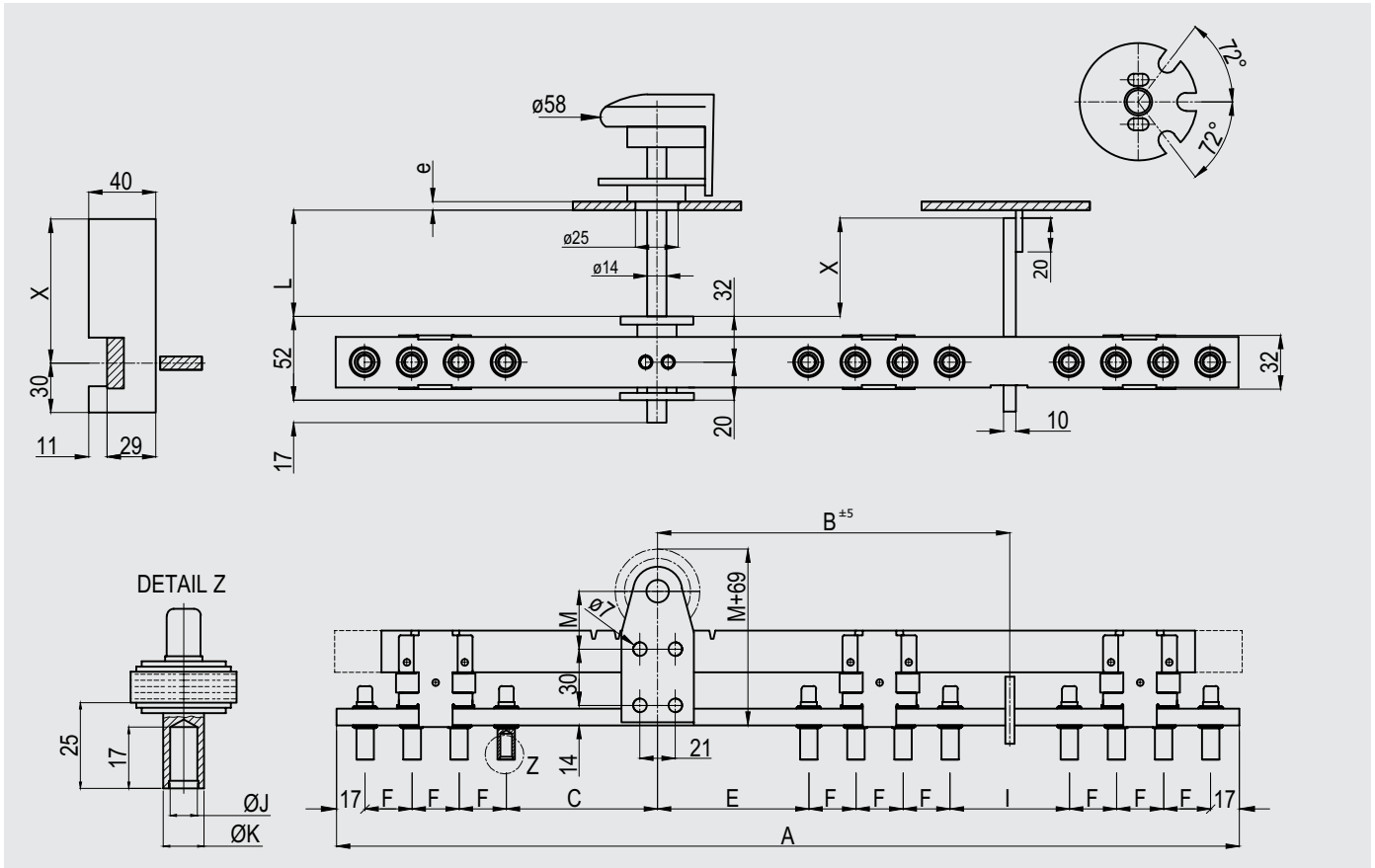
Delta Diagram / 10 - 30 kV / 120 A / 2 - 5 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	A	B	C	D	E	G	F	M min.	L	e	Unit No 120 A J: 8.1 K: 12
10	120	2	466	390	59	58	67	48	28	32	Please specify when ordering		K231D224
		3	578	474	59	86	67	48	28	32			K231D324
		4	690	558	59	114	67	48	28	32			K231D424
		5	802	642	59	142	67	48	28	32			K231D524
20	120	2	558	482	82	58	90	71	28	32			K231D244
		3	670	566	82	86	90	71	28	32			K231D344
		4	782	650	82	114	90	71	28	32			K231D444
		5	894	734	82	142	90	71	28	32			K231D544
30	120	2	686	610	122	58	130	95	28	32			K231D254
		3	798	694	122	86	130	95	28	32			K231D354
		4	910	778	122	114	130	95	28	32			K231D454
		5	1022	862	122	142	130	95	28	32			K231D554

## Type KHZ Threephase Tap Changer

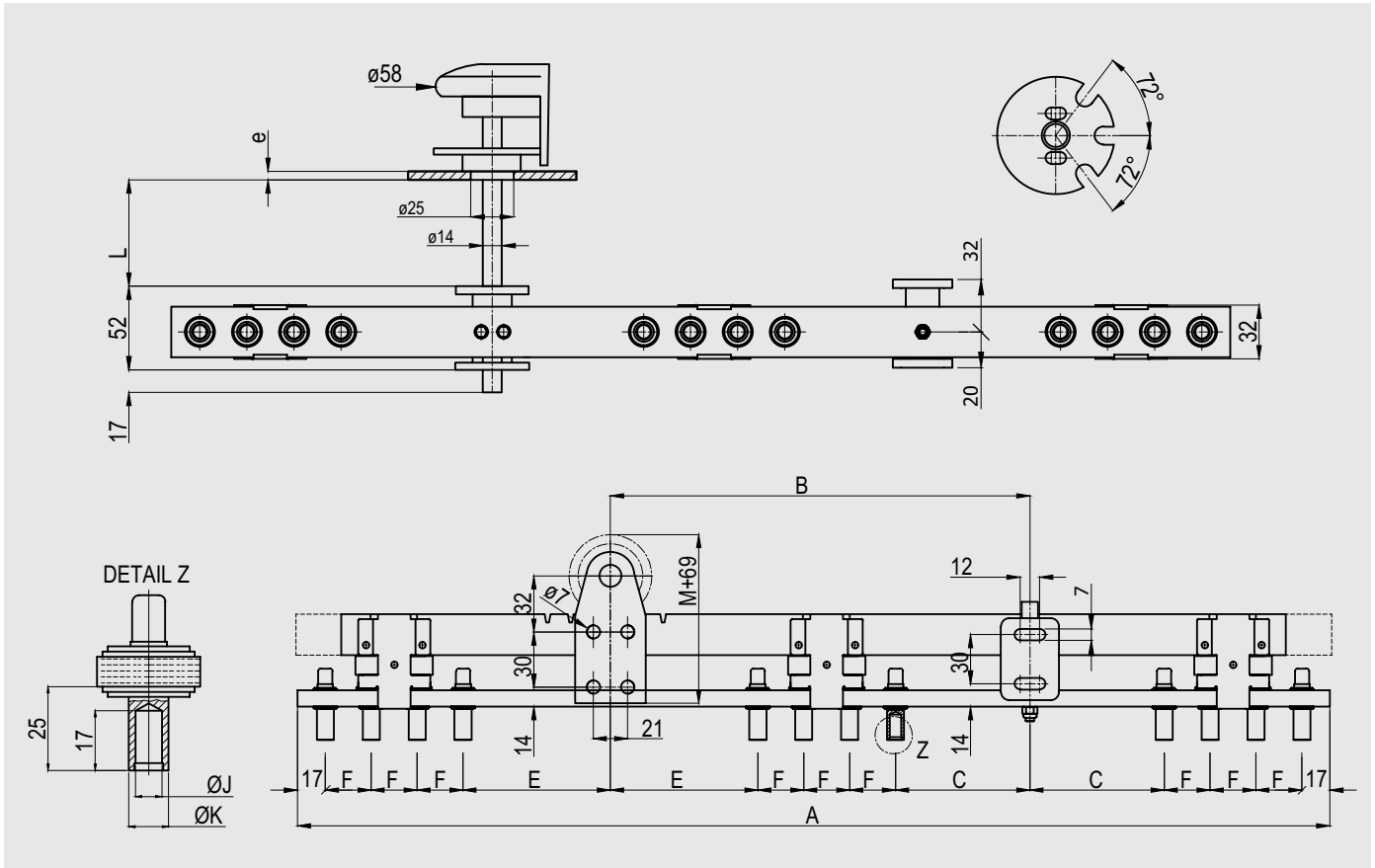
Delta Diagram / 10 - 30 kV / 120 A / 2 - 5 Positions / Setting 2.5 % per Position (With HP Support)



Voltage Class kV	Current A	Number of Positions	A	B	C	E	I	F	X min	M	L	e	Unit No 120 A J: 8.1 K: 12
10	120	2	384	147	67	67	48	28	48	32	Please specify when ordering		K235D224
		3	468	175	67	67	48	28	48	32			K235D324
		4	552	203	67	67	48	28	48	32			K235D424
		5	636	231	67	67	48	28	48	32			K235D524
20	120	2	453	181	90	90	71	28	48	32		K235D244	
		3	537	209	90	90	71	28	48	32		K235D344	
		4	621	237	90	90	71	28	48	32		K235D444	
		5	705	265	90	90	71	28	48	32		K235D544	
30	120	2	557	233	130	130	95	28	88	32		K235D254	
		3	641	261	130	130	95	28	88	32		K235D354	
		4	725	289	130	130	95	28	88	32		K235D454	
		5	809	317	130	130	95	28	88	32		K235D554	

## Type KHZ Threephase Tap Changer

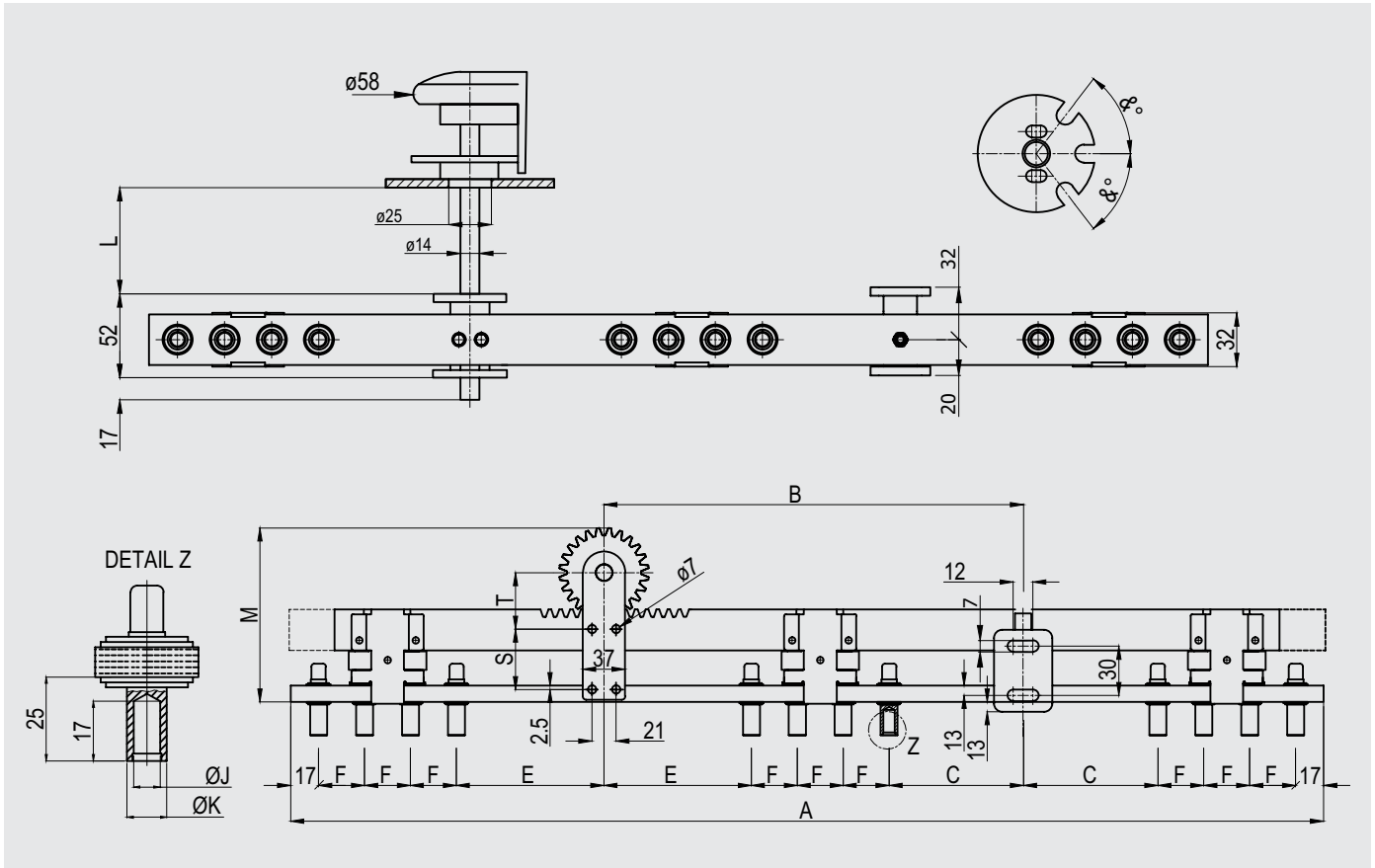
Delta Diagram / 10 - 30 kV / 120 A / 2 - 5 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	A	B	C	E	F	M	L	e	Unit No 120 A J: 8.1 K: 12
10	120	2	454	182	59	67	28	32	Please specify when ordering		K234D224
		3	538	210	59	67	28	32			K234D324
		4	622	238	59	67	28	32			K234D424
		5	706	266	59	67	28	32			K234D524
20	120	2	546	228	82	90	28	32			K234D244
		3	630	256	82	90	28	32			K234D344
		4	714	284	82	90	28	32			K234D444
		5	798	312	82	90	28	32			K234D544
30	120	2	706	308	122	130	28	32			K234D254
		3	790	336	122	130	28	32			K234D354
		4	874	364	122	130	28	32			K234D454
		5	958	392	122	130	28	32			K234D554

## Type KHZ Threephase Tap Changer

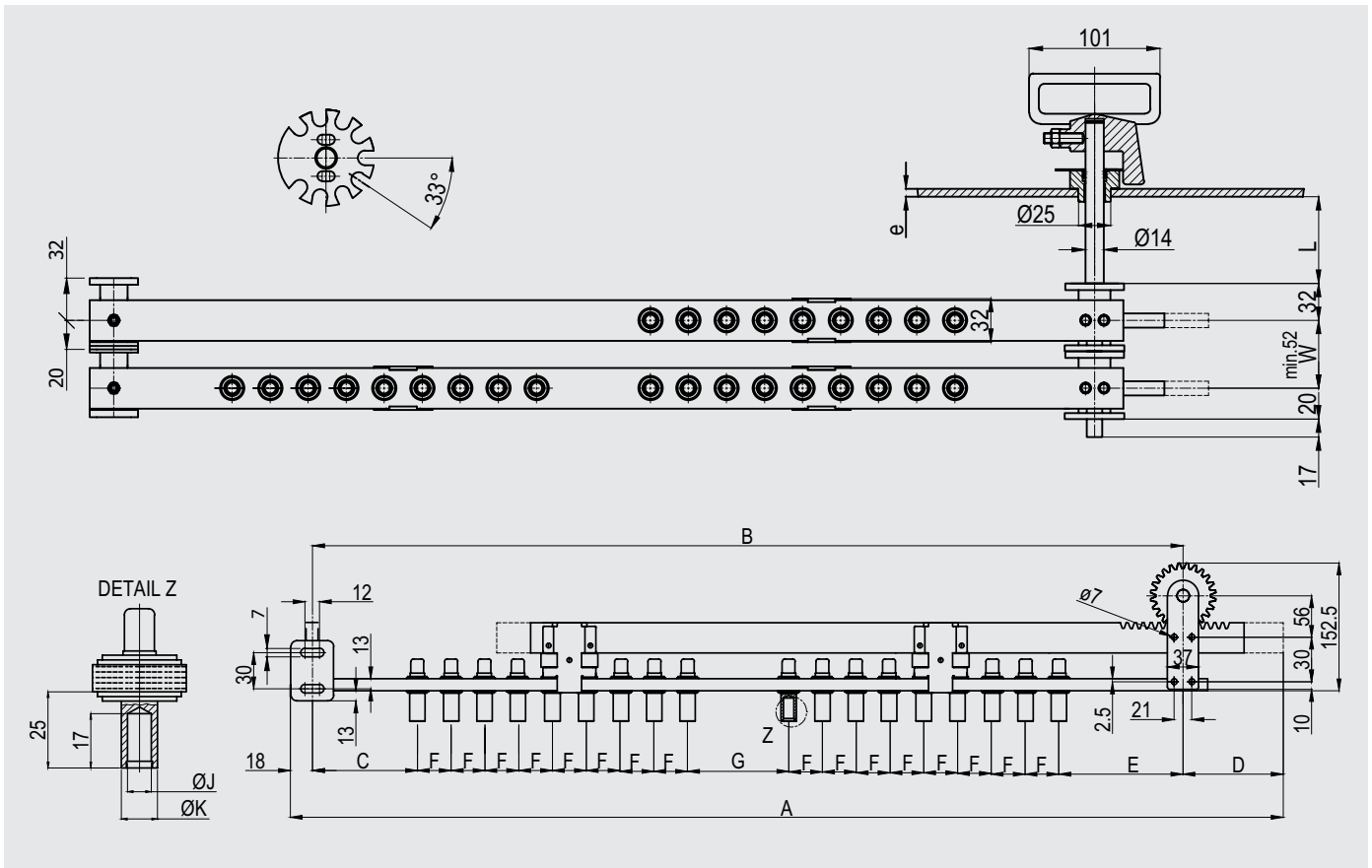
Delta Diagram / 10 - 30 kV / 120 A / 6 - 11 Positions / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	A	B	C	E	S	T	M	F	& °	L	e	Unit No 120 A J: 8.1 K: 12
10	120	6	790	294	59	67	30	44	129.5	28	44,3°	Please specify when ordering		K234D624
		7	874	322	59	67	30	44	129.5	28	44,3°			K234D724
		8	958	350	59	67	30	56	152.5	28	33°			K234D824
		9	1042	378	59	67	30	56	152.5	28	33°			K234D924
		10	1126	406	59	67	30	56	152.5	28	33°			K234D1024
		11	1210	434	59	67	30	56	152.5	28	33°			K234D1124
20	120	6	882	340	82	90	30	44	129.5	28	44,3°			K234D644
		7	966	368	82	90	30	44	129.5	28	44,3°			K234D744
		8	1050	396	82	90	30	56	152.5	28	33°			K234D844
		9	1134	424	82	90	30	56	152.5	28	33°			K234D944
		10	1218	452	82	90	30	56	152.5	28	33°			K234D1044
		11	1302	480	82	90	30	56	152.5	28	33°	K234D1144		
30	120	6	1042	420	122	130	30	44	129.5	28	44,3°	K234D654		
		7	1126	448	122	130	30	44	129.5	28	44,3°	K234D754		
		8	1210	476	122	130	30	56	152.5	28	33°	K234D854		
		9	1294	504	122	130	30	56	152.5	28	33°	K234D954		
		10	1378	532	122	130	30	56	152.5	28	33°	K234D1054		
		11	1462	560	122	130	30	56	152.5	28	33°	K234D1154		

### Type KHZ Threephase Tap Changer

Delta Diagram / 10 - 30 kV / 120 A / 8 - 11 Positions / Special Diagram / Setting 2.5 % per Position  
(With Aluminium Support)

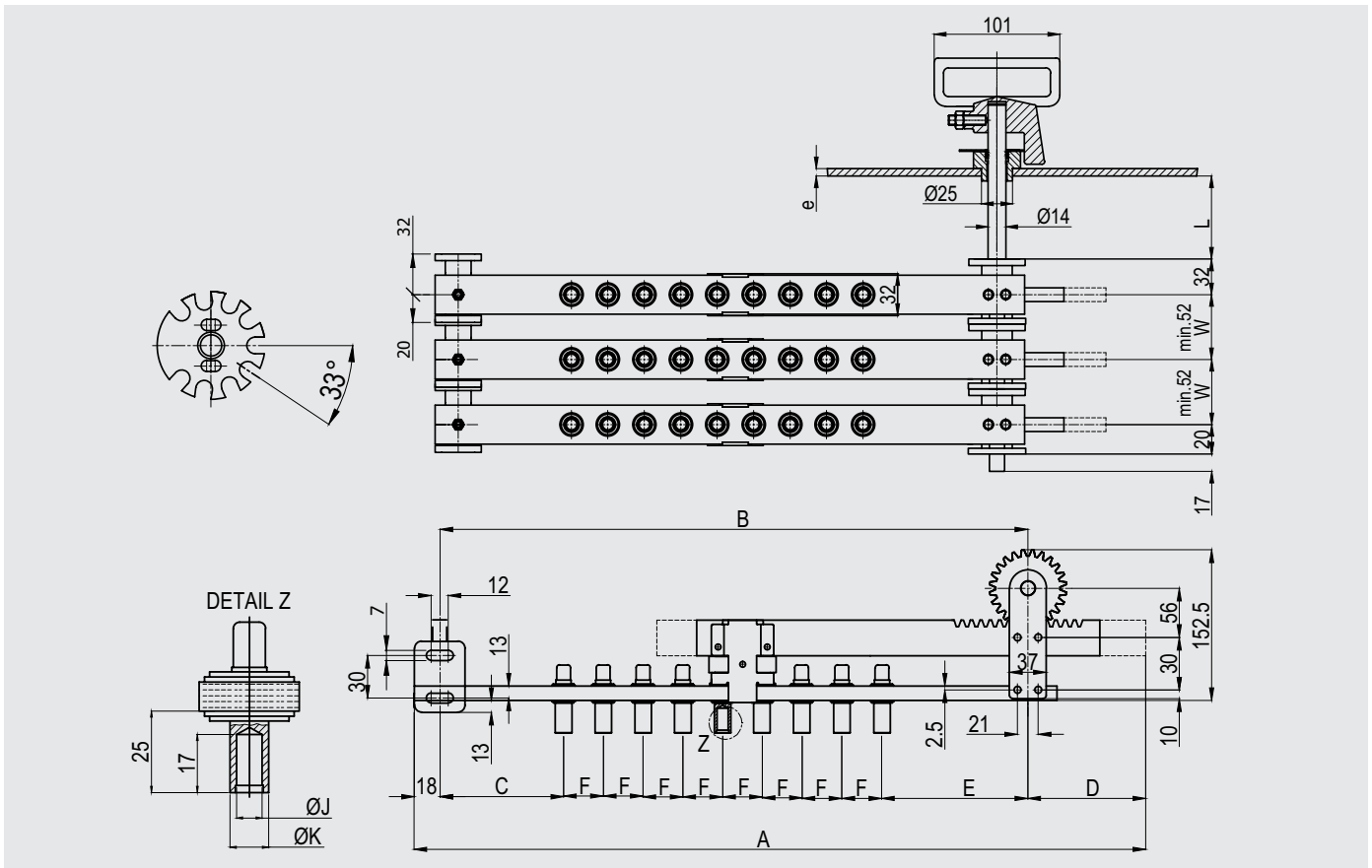


Voltage Class kV	Current A	Number of Positions	A	B	C	D	E	G	F	L	e	W	Unit No 120 A J: 8.1 K: 12
10	120	8	866	622	59	251	67	48	28	Please specify when ordering			K271D824
		9	950	678	59	279	67	48	28				K271D924
		10	1034	734	59	307	67	48	28				K271D1024
		11	1118	790	59	335	67	48	28				K271D1124
20	120	8	935	691	82	251	90	71	28				K271D844
		9	1019	747	82	279	90	71	28				K271D944
		10	1103	803	82	307	90	71	28				K271D1044
		11	1187	859	82	335	90	71	28				K271D1144
30	120	8	1039	795	122	251	130	95	28				K271D854
		9	1123	851	122	279	130	95	28				K271D954
		10	1207	907	122	307	130	95	28				K271D1054
		11	1291	963	122	335	130	95	28				K271D1154



## Type KHZ Threephase Tap Changer

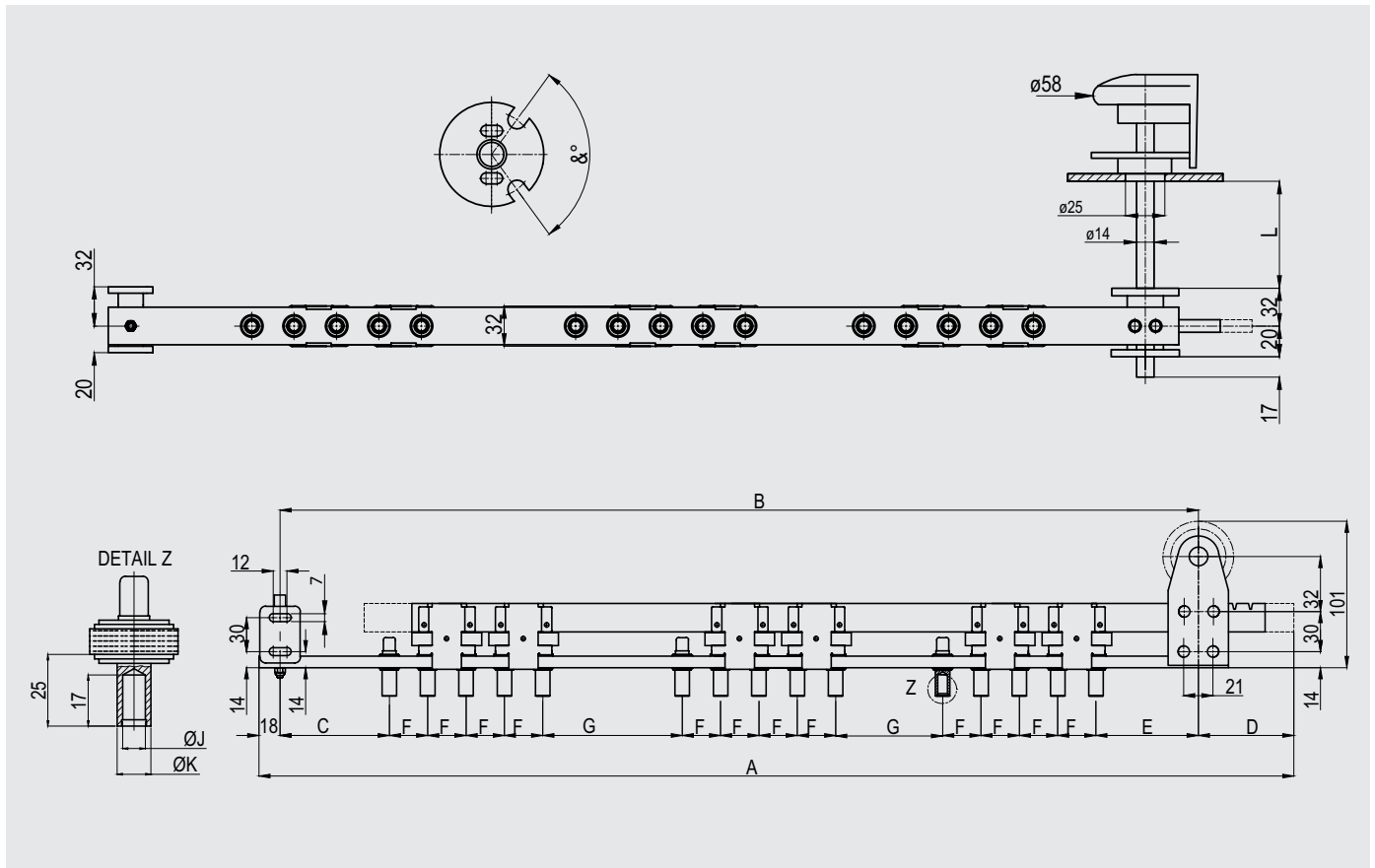
Delta Diagram / 10 - 30 kV / 120 A / 8 - 11 Positions / Special Diagram / Setting 2.5 % per Position  
(With Aluminium Support)



Voltage Class kV	Current A	Number of Positions	A	B	C	D	E	F	L	e	W	Unit No 120 A J: 8.1 K: 12
10	120	8	619	350	59	251	67	28	Please specify when ordering			K271D824
		9	675	378	59	279	67	28				K271D924
		10	721	406	59	307	67	28				K271D1024
		11	777	434	59	335	67	28				K271D1124
20	120	8	665	396	82	251	90	28				K271D844
		9	721	424	82	279	90	28				K271D944
		10	777	452	82	307	90	28				K271D1044
		11	833	480	82	335	90	28				K271D1144
30	120	8	745	476	122	251	130	28				K271D854
		9	801	504	122	279	130	28				K271D954
		10	857	532	122	307	130	28				K271D1054
		11	913	560	122	335	130	28				K271D1154

## Type KHZ Threephase Tap Changer

Series Parallel Coupling / 25 - 30 kV / 120 A (With Aluminium Support)

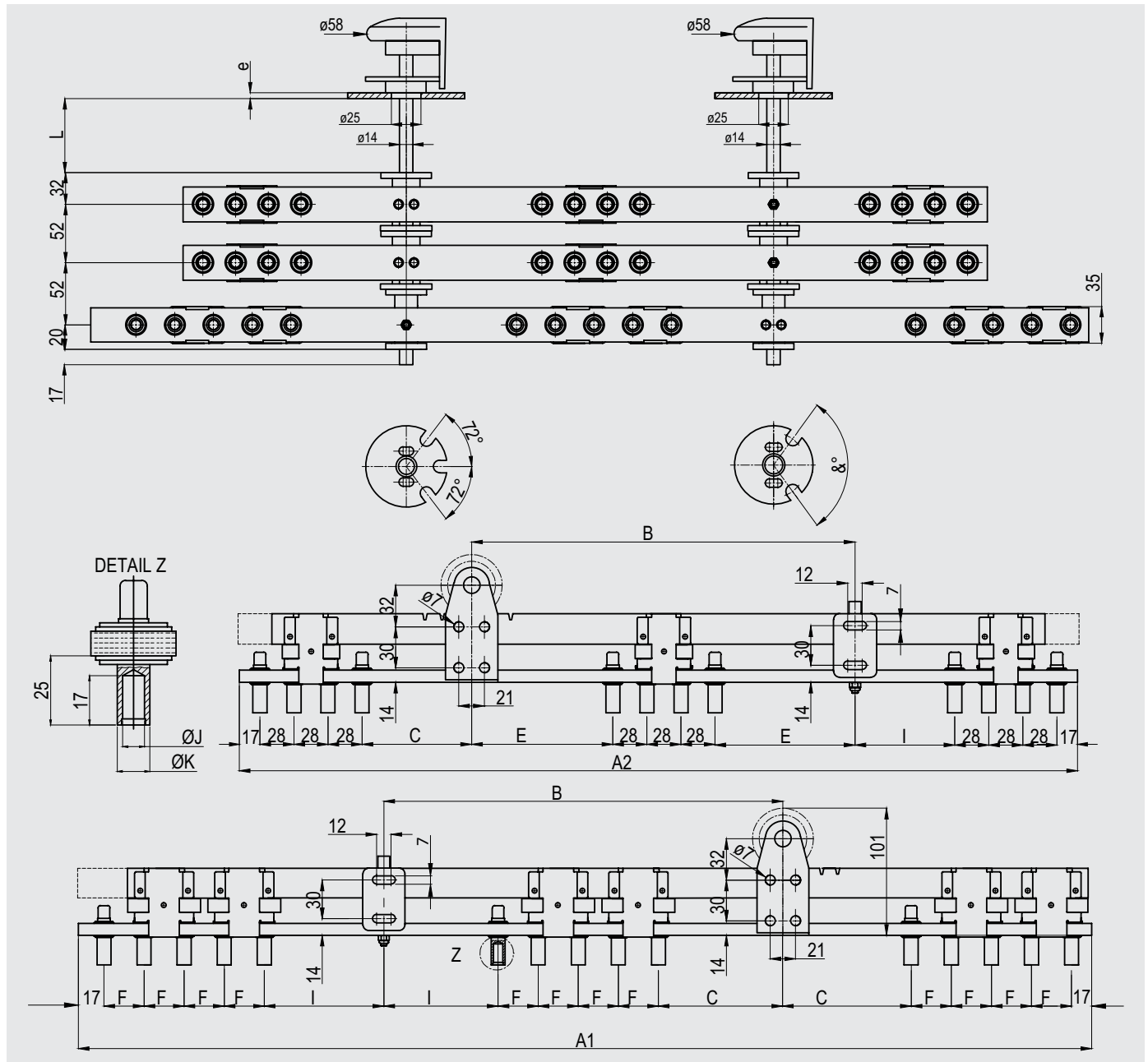


Voltage Class kV	Current A	A	B	C	D	E	F	G	& °	L	e	Unit No 120 A J: 8.1 K: 12
5 - 10	120	833	743	68	72	75	42	48	108 °	Please specify when ordering		K231P294
10 - 20		908	818	82	72	90	42	71	108 °			K231P274
25 - 30		1127	1030	122	79	130	49	95	126 °			K231P284

## Type KHZ Threephase Tap Changer

1. Series Parallel Coupling / 10 - 30 kV / 120 A

2. Delta Settings / 20 - 30 kV / 120 A / Setting 2.5 % per Position (With Aluminium Support)



Voltage Class kV		Current A	Number of Positions	A	A1	B	C	E	I	F	&°	L	e	Unit No 120 A J: 8.1 K: 12
Series Parallel	Delta													
10 - 20	20	120	3	833	714	340	90	128	82	42	108°	Please specify when ordering		K254K374
			4	908	770	340	90	114	82	42	108°			K254K474
			5	1127	826	340	90	100	82	42	108°			K254K574
25 - 30	30	120	3	1126	902	448	130	182	122	49	126°			K254K384
			4	1126	958	448	130	168	122	49	126°			K254K484
			5	1126	1014	448	130	154	122	49	126°			K254K584