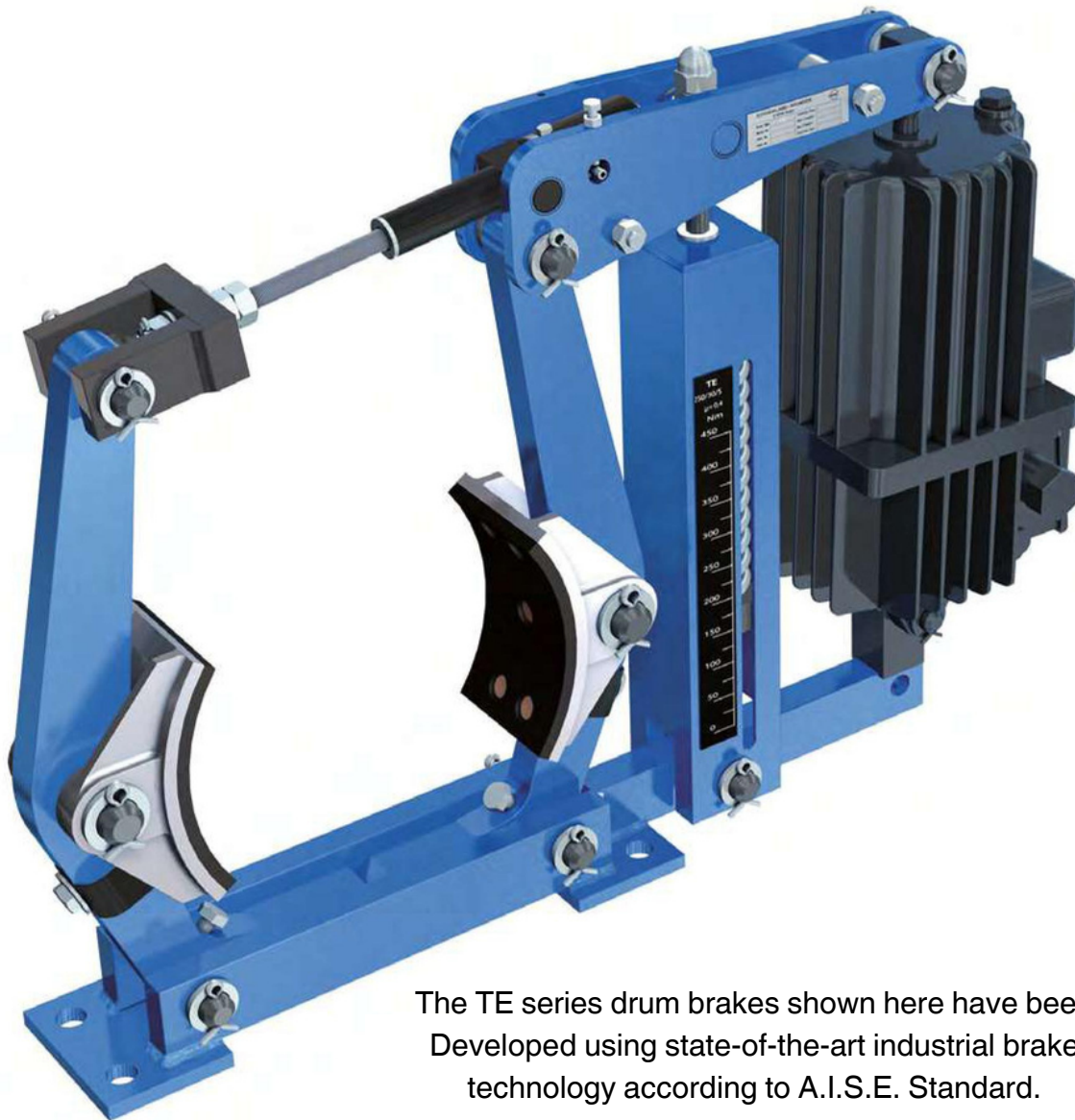




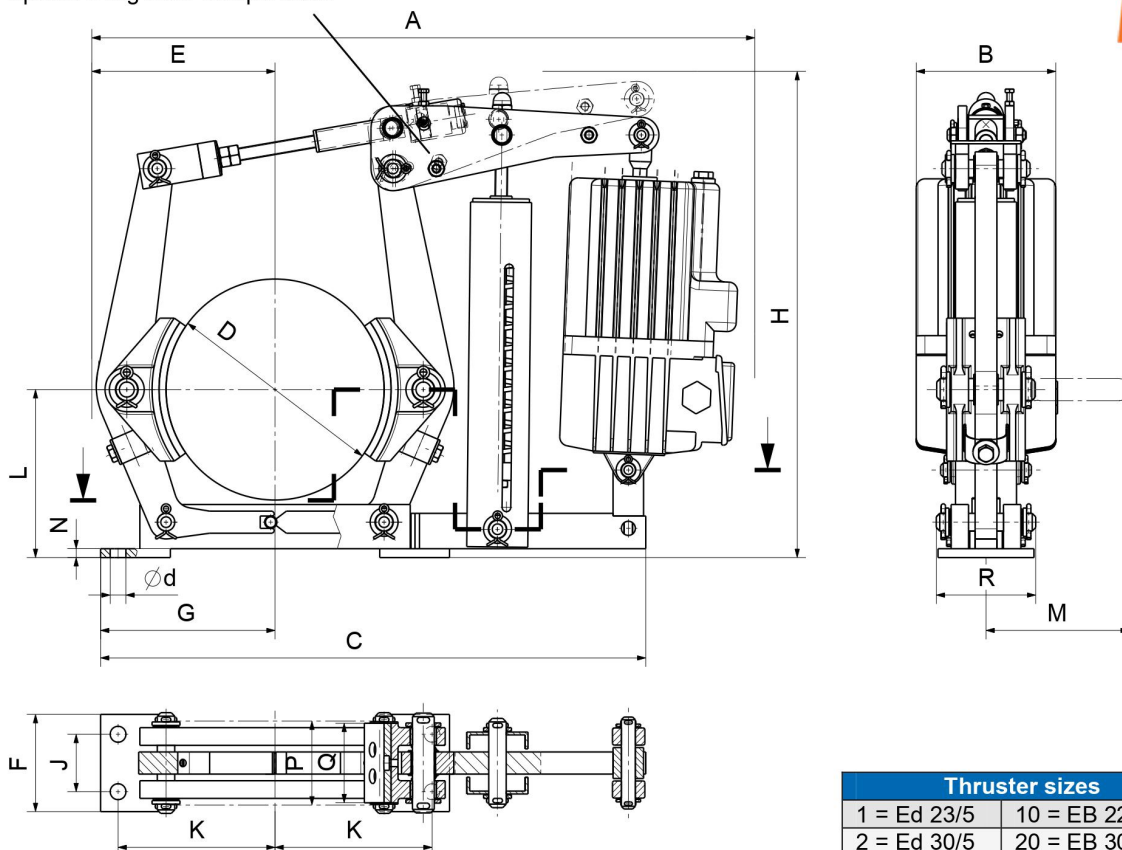
The TE series drum brakes shown here have been Developed using state-of-the-art industrial brake technology according to A.I.S.E. Standard.

This robust model was particularly designed for use in general engineering, metallurgy, crane and conveyor plants, for use both underground and above ground, as well as in wind turbine plants.

These brakes are for use whenever a constant brake torque is of utmost importance, not only for reasons of safety but also from a commercial standpoint.



option: lining wear compensator



When ordering please advise:

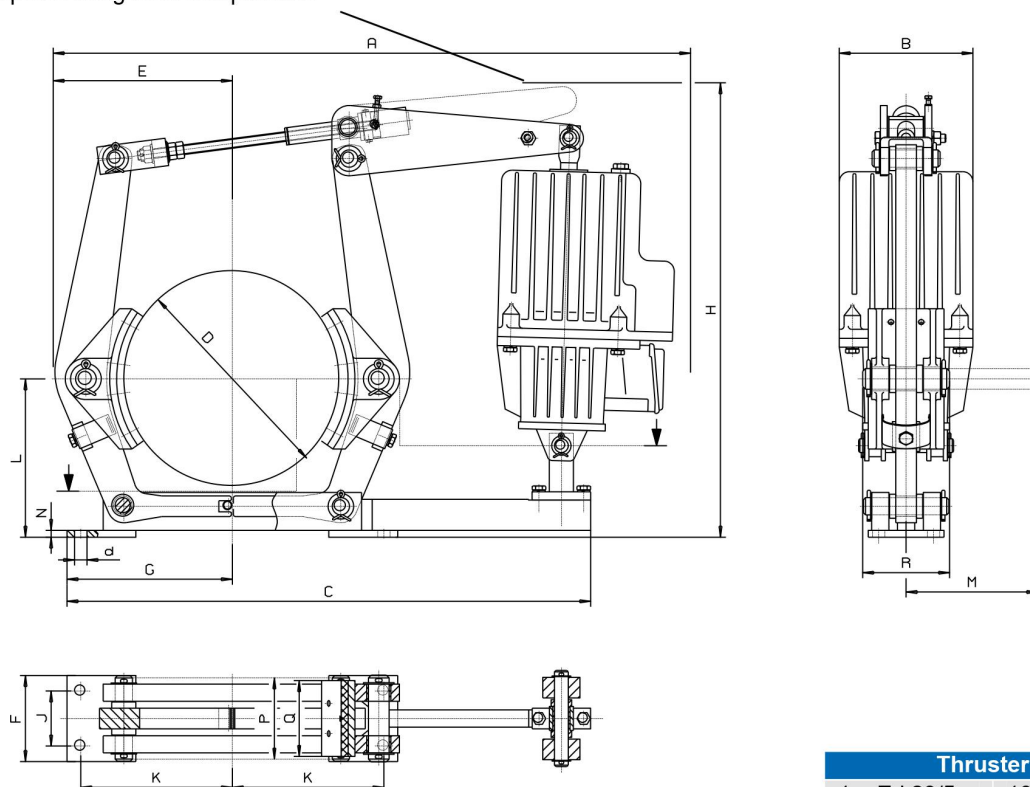
- Brake Type and thruster e.g. TE 250/23/5
- power supply voltage for thruster
- with or without lining wear compensator
- options

Thruster sizes	
1 = Ed 23/5	10 = EB 220-50
2 = Ed 30/5	20 = EB 300-50
3 = Ed 50/6	30 = EB 500-60
4 = Ed 80/6	40 = EB 800-60
5 = Ed 121/6	50 = EB 1250-60
6 = Ed 201/6	60 = EB 2000-60
7 = Ed 301/6	70 = EB 3000-60

Brake-Type	Thruster size	Torque Range in Nm at $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
TE 200	1 / 10	50 – 300	640	160	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	19
	2 / 20	85 – 400	640	160						475										
TE 250	1 / 10	40 – 325	760	160	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	30
	2 / 20	40 – 450	760	160						550										
TE 315	3 / 30	100 – 850	800	195	735	315	260	125	240	560	80	220	230	160	10	118	110	135	18	50
	4 / 40	90 – 1700	925	195						650										
TE 400	1 / 10	70 – 420	885	160	900	400	310	160	300	650	100	270	280	199	12	150	140	167	22	85
	2 / 20	80 – 575	1030	160						650										
TE 500	3 / 30	100 – 1100	1075	195	1025	500	385	190	355	775	130	325	340	242	13	190	180	202	22	130
	4 / 40	100 – 1800	1075	195						775										
TE 630	5 / 50	125 – 2750	1075	240	1190	630	465	250	440	870	170	400	420	295	15	236	225	244	27	206
	6 / 60	200 – 1400	1225	195						870										
TE 710	5 / 50	200 – 2200	1225	195	1302	710	525	270	490	870	190	450	470	332	15	265	255	276	27	268
	6 / 60	200 – 3400	1215	240						870										
	5 / 50	200 – 5400	1215	240						1000										
	6 / 60	500 – 3300	1365	240						1000										
	5 / 50	500 – 5500	1365	240						1100										
	7 / 70	500 – 8200	1365	240						1100										
	5 / 50	500 – 3800	1500	240						1100										
	6 / 60	500 – 6300	1500	240						1100										
	5 / 50	500 – 9400	1500	240						1100										
	7 / 70									1100										



option: lining wear compensator



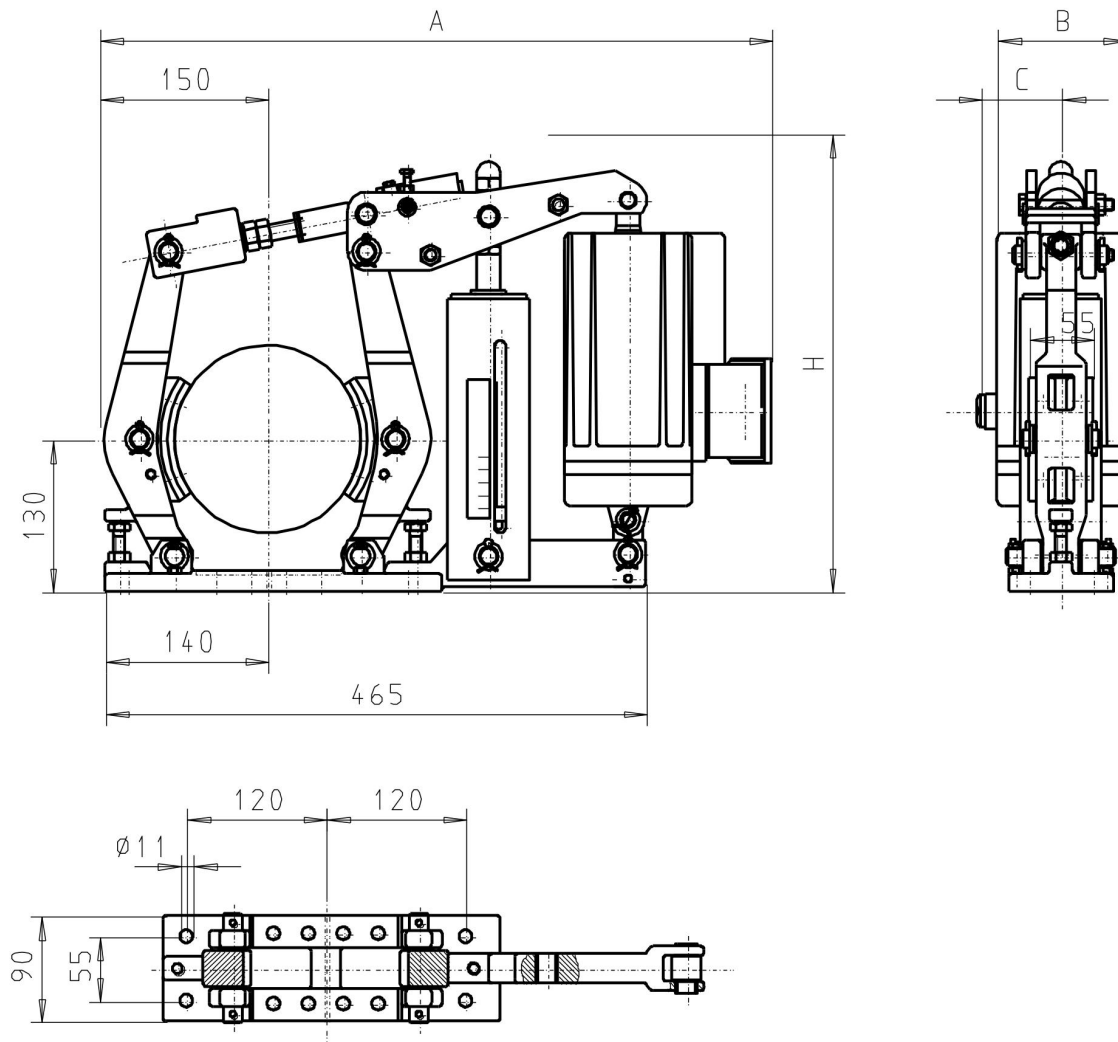
Thruster sizes

1 = Ed 23/5c	10 = EB 220-50c
2 = Ed 30/5c	20 = EB 300-50c
3 = Ed 50/6c	30 = EB 500-60c
4 = Ed 80/6c	40 = EB 800-60c
5 = Ed 121/6c	50 = EB 1250-60c
6 = Ed 201/6c	60 = EB 2000-60c
7 = Ed 301/6c	70 = EB 3000-60c

When ordering please advise:

- Brake Type and thruster e.g. TEc 250/23/5
- power supply voltage for thruster
- with or without lining wear compensator
- options

Brake-Type	Thruster size	Torque Range in Nm at $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
TEc 200	1 / 10	245	640	160	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	16
	2 / 20	360	640	160						475										
TEc 250	1 / 10	265	760	160						550										
	2 / 20	405	760	160	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	27
	3 / 30	780	800	195						560										
TEc 315	1 / 10	345	885	160						650										
	2 / 20	495	885	160						650										
	3 / 30	965	925	195	735	315	260	125	240	660	80	220	230	160	10	118	110	135	18	46
	4 / 40	1595	925	195						660										
TEc 400	2 / 20	515	1030	160						765										
	3 / 30	1010	1075	195						775										
	4 / 40	1690	1075	195	900	400	310	160	300	775	100	270	280	199	12	150	140	167	22	80
	5 / 50	2640	1075	240						775										
TEc 500	3 / 30	1290	1225	195						870										
	4 / 40	2060	1225	195						870	130	325	340	242	13	190	180	202	22	125
	5 / 50	3265	1215	240	1025	500	385	190	355	870										
	6 / 60	5130	1215	240						870										
TEc 630	5 / 50	3170	1365	240						1000										
	6 / 60	5225	1365	240	1190	630	465	250	440	1000	170	400	420	295	15	236	225	244	27	200
	7 / 70	7380	1365	240						1000										
TEc 710	5 / 50	3650	1500	240						1100										
	6 / 60	5985	1500	240	1302	710	525	270	490	1100	190	450	470	332	15	265	255	276	27	262
	7 / 70	8460	1500	240						1100										



When ordering please advice:
 - Order-no., e.g. for TE 160/220/50
 - power supply voltage of thruster
 - with or without autom. wear compensator
 - optional features such as limit switch manual release,
 drum, coupling, covering cap

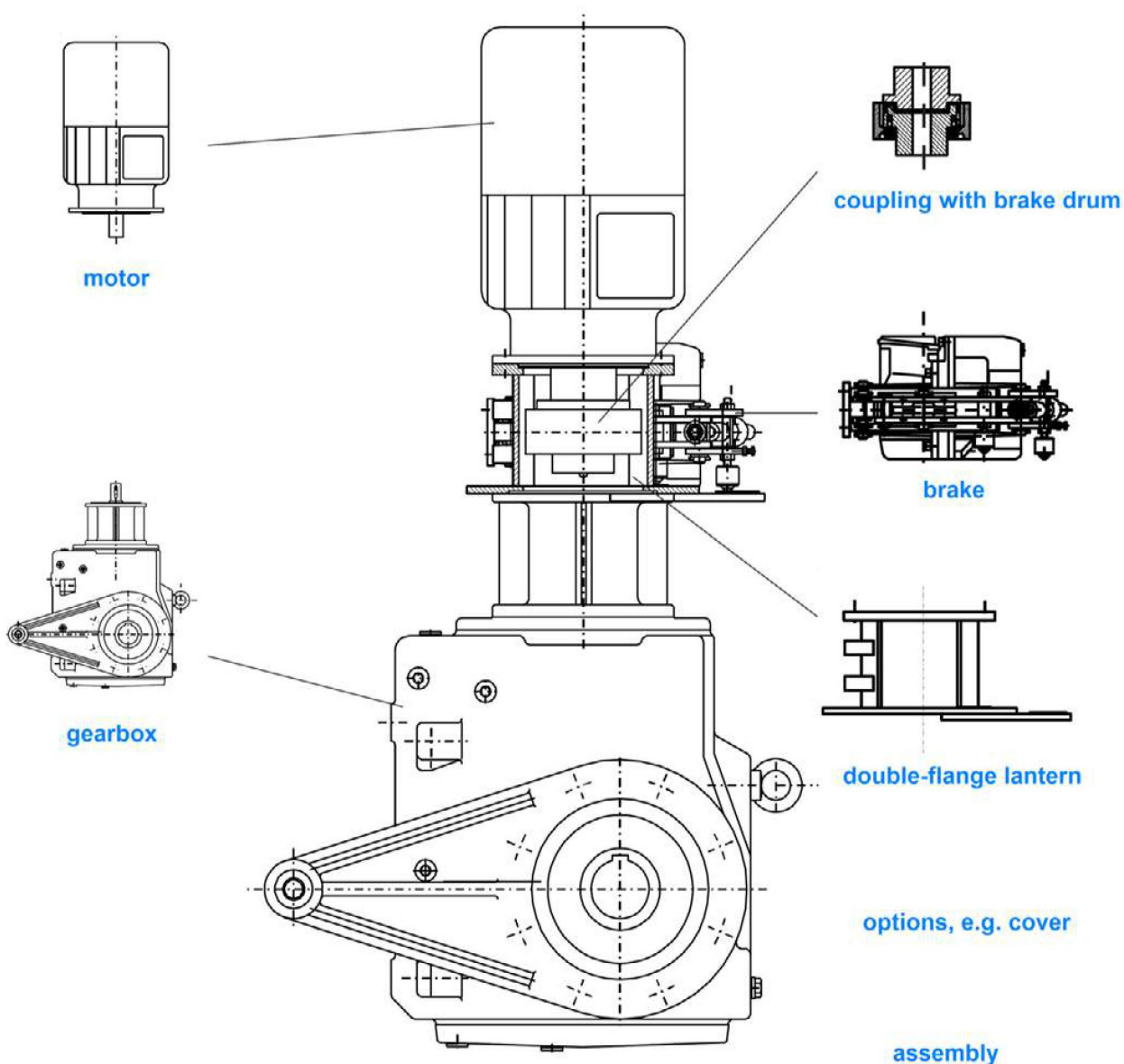
Brake type	No.	Thruster unit	Mbr. (Nm) torque $\mu = 0,4$	A	B	C	H
TE 160/120/40	1	EB 120/40	45 - 125	575	110	73	395
TE 160/220/50	2	EB 220/50	55 - 230	610	162	100	400

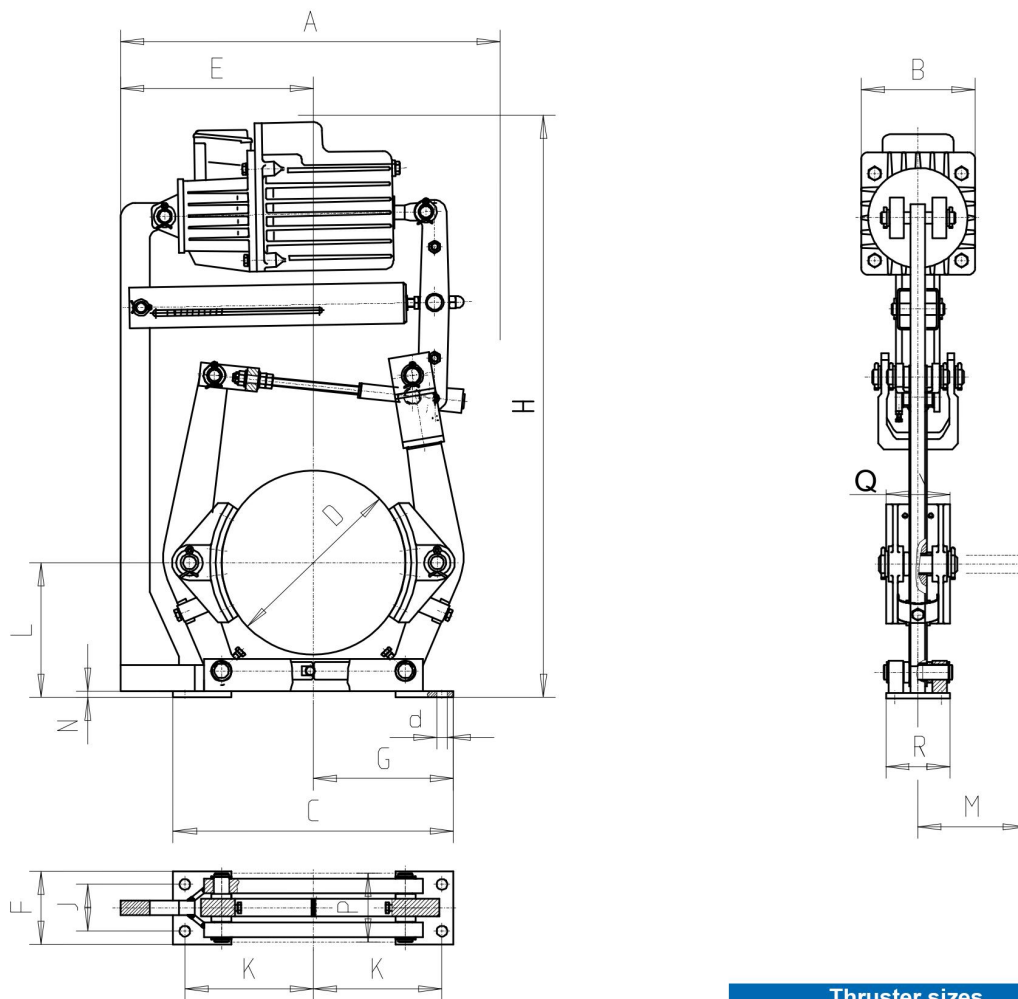


The drum brake TE 160 offer a particularly usability for compact-drives, e. a. vertical mounting, travel drives. Our scope of supply is beneath the brake also mounting console for adapting gearbox and motor as well as coupling/brake-drum and steel-cover.

supplied by customer

supplied by SIBRE





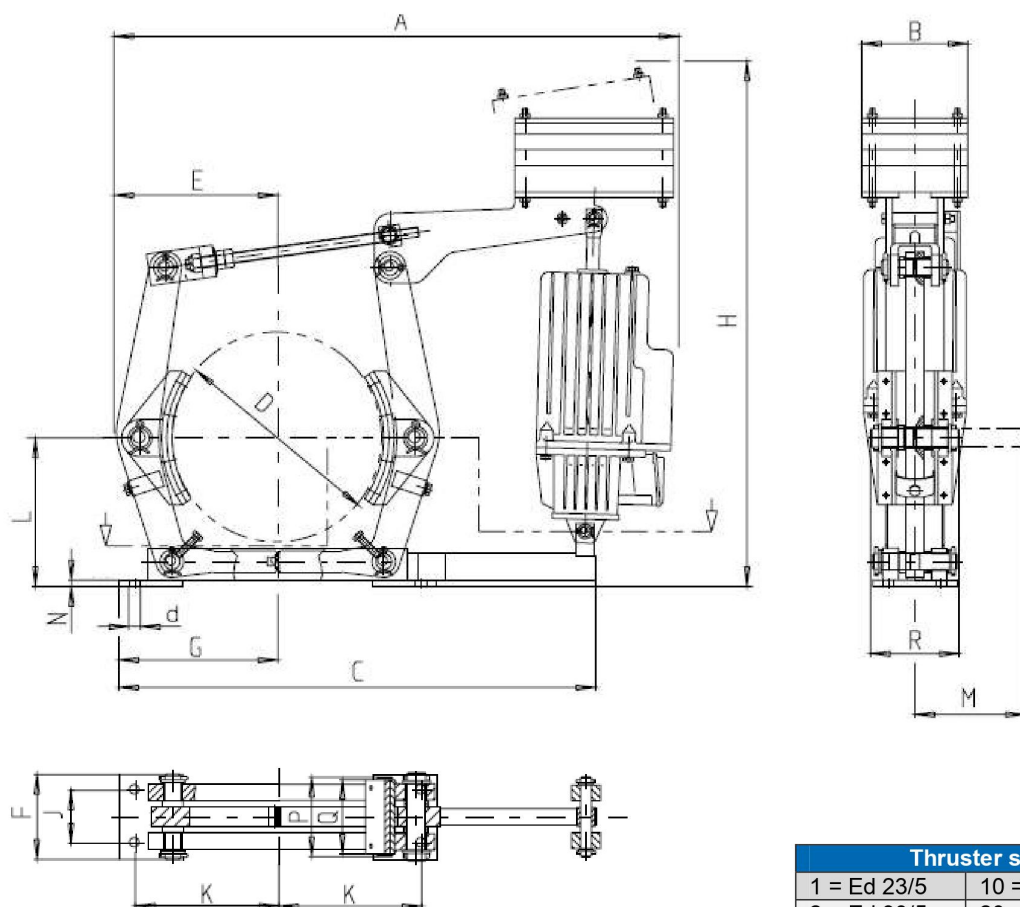
When ordering please advise:

- brake type and thruster e.g. SBH 250/23/5
- voltage and frequency for thruster
- with or without lining wear compensator
- options (switches, manual release lever, etc.)

Thruster sizes

1 = Ed 23/5	10 = EB 220-50
2 = Ed 30/5	20 = EB 300-50
3 = Ed 50/6	30 = EB 500-60
4 = Ed 80/6	40 = EB 800-60
5 = Ed 121/6	50 = EB 1250-60
6 = Ed 201/6	60 = EB 2000-60

Brake-Type	Thruster size	Torque Range in Nm at $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
SBH 200	1 / 10	50 - 325	520	160	320	200	270	90	160	750	55	145	160	130	10	75	70	96	14	28
	2 / 20	50 - 425		160																
SBH 250	1 / 10	50 - 325	530	160						870										
	2 / 20	50 - 425	530	160	400	250	284	110	200	870	65	180	190	155	10	95	90	113	18	40
	3 / 30	50 - 850	570	195						910										
SBH 315	1 / 10	50 - 475	640	160						965										
	2 / 20	50 - 600	640	160						965										
	3 / 30	150 - 1200	650	195	480	315	330	125	240	995	80	220	230	185	15	118	110	135	18	52
	4 / 40	150 - 1950	650	195						995										
SBH 400	2 / 20	150 - 600	760	160						1050										
	3 / 30	150 - 1200	760	195	600	400	407	160	300	1085	100	270	280	230	15	150	140	167	22	82
	4 / 40	150 - 1950	760	195						1085										
	5 / 50	150 - 2250	840	240	600	400	490	160	300	1095	100	270	280	230	15	150	140	167	22	88
SBH 500	3 / 30	400 - 1420	900	195						1330										
	4 / 40	400 - 2300	900	195						1330										
	5 / 50	400 - 3400	900	240	710	500	490	190	355	1330	130	325	340	285	13	190	180	190	22	130
	6 / 60	400 - 5700	900	240						1330										

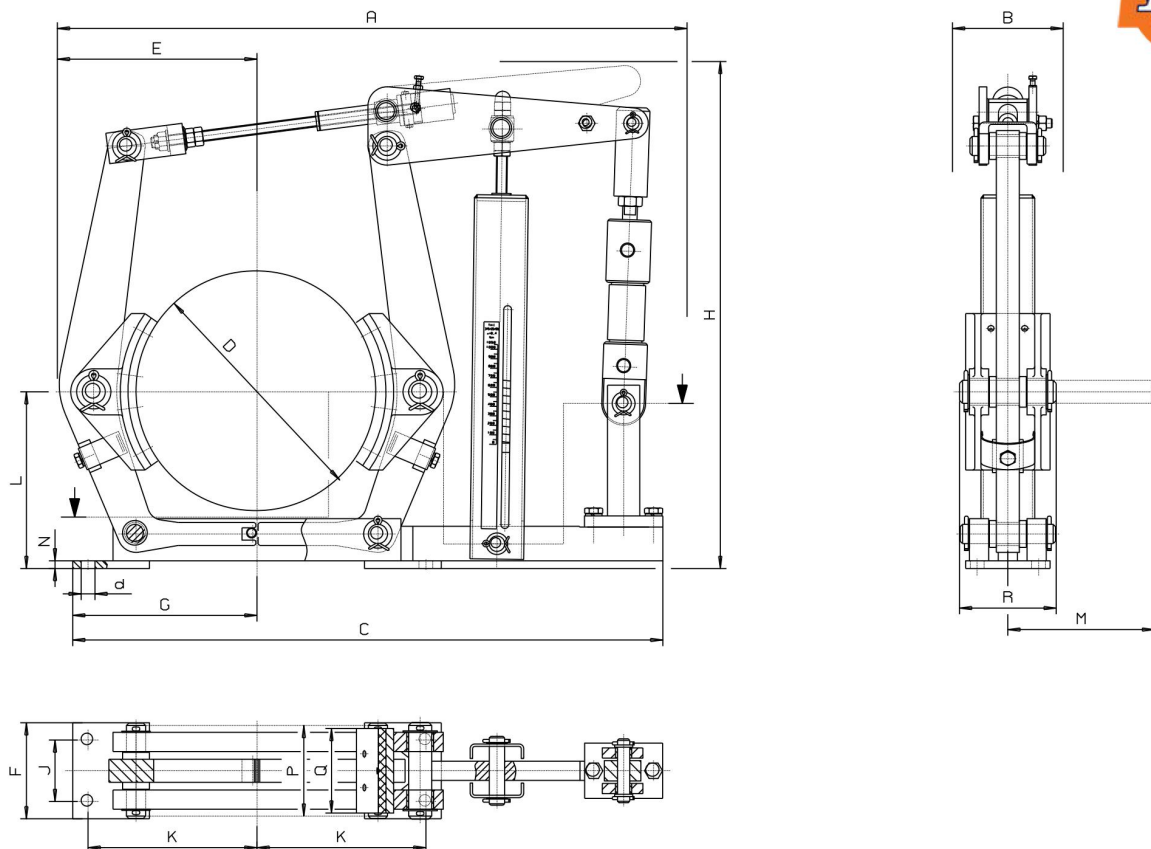


When ordering please advice:

- Brake type and thruster e.g. SBG 200/23/5
- power supply voltage for thruster
- options

Thruster sizes	
1 = Ed 23/5	10 = EB 220-50
2 = Ed 30/5	20 = EB 300-50
3 = Ed 50/12	30 = EB 500-120
4 = Ed 80/12	40 = EB 800-120
5 = Ed 121/12	50 = EB 1250-120
6 = Ed 201/12	60 = EB 2000-120
7 = Ed 301/12	70 = EB 3000-120

Brake type	Thruster size	Torque Range in Nm at $\mu = 4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
SBG 200	1 / 10	50 - 300	650	160	515	200	170	90	160	620	55	145	160	115	10	75	70	96	14	45
	2 / 20	85 - 400	650	160						660										50
SBG 250	1 / 10	40 - 325	750	160	625	250	210	110	200	680	65	180	190	133	10	95	90	113	18	57
	2 / 20	40 - 450	750	160						710										62
	3 / 30	100 - 850	785	195						835										82
SBG 315	1 / 10	70 - 420	880	160	735	315	260	125	240	770	80	220	230	160	10	118	110	135	18	66
	2 / 20	70 - 550	880	160						800										73
	3 / 30	75 - 1050	880	195						830										93
	4 / 40	90 - 1700	880	195						920										123
SBG 400	2 / 20	80 - 575	965	195	900	400	310	160	300	900	100	270	280	199	12	150	140	167	22	103
	3 / 30	100 - 1100	1005	195						940										123
	4 / 40	100 - 1800	1005	195						1000										153
	5 / 50	125 - 2750	1040	240						1050										195
SBG 500	3 / 30	200 - 1400	1185	220	1025	500	385	190	355	1040	130	325	340	242	13	190	180	202	22	173
	4 / 40	200 - 2200	1185	220						1090										203
	5 / 50	200 - 3400	1175	240						1180										243
	6 / 60	200 - 5400	1175	300						1230										323
SBG 630	5 / 50	500 - 3300	1330	240	1190	630	465	250	440	1300	170	400	420	295	15	236	225	244	27	347
	6 / 60	500 - 5500	1330	300						1350										427
	7 / 70	500 - 8200	1375	350						1350										527
SBG 710	5 / 50	500 - 3800	1465	240	1302	710	525	270	490	1400	190	450	470	332	15	265	255	276	27	380
	6 / 60	500 - 6300	1465	300						1450										460
	7 / 70	500 - 9400	1540	350						1450										560

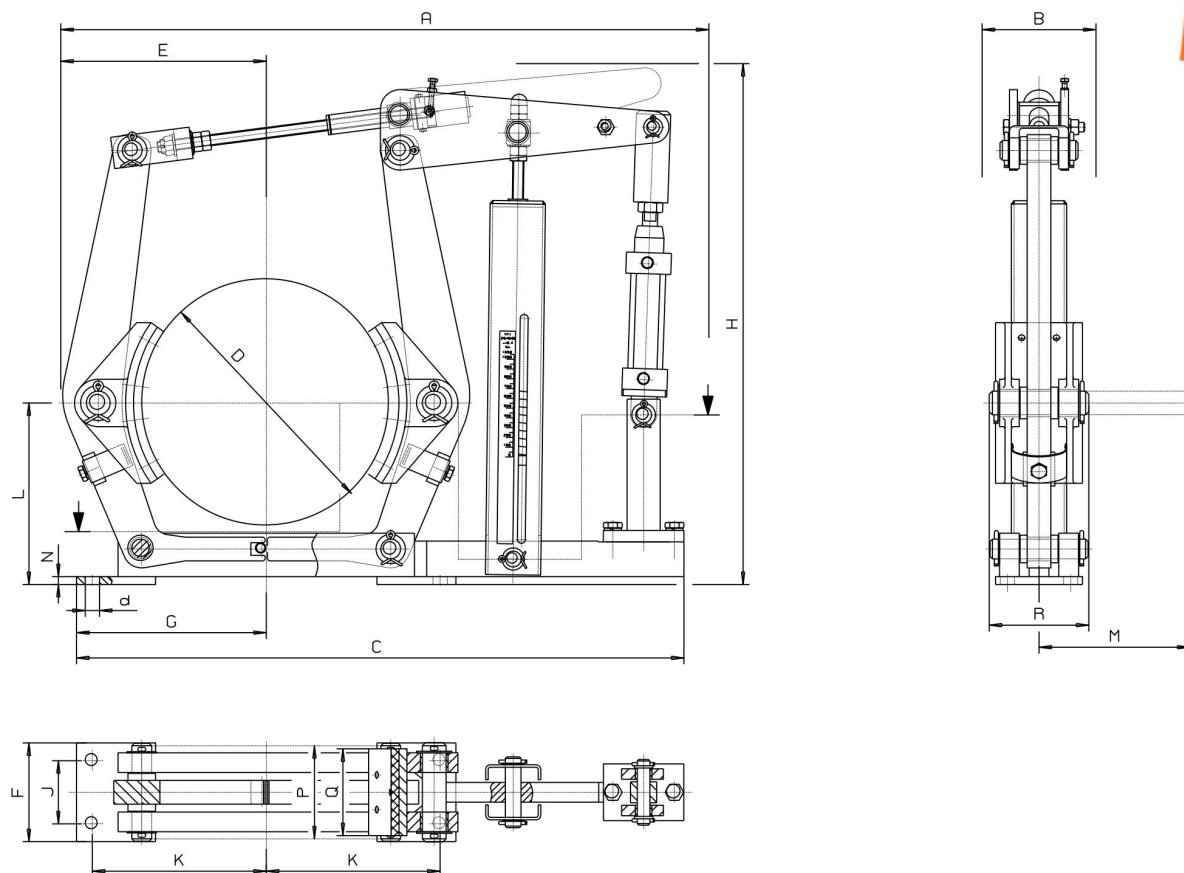


When ordering please advice:

- Brake type and brake torque e.g. THi 200-50-300
- with or without wear compensation
- options

Necessary volume flow: 8 l / min.

Brake type	Requested pressure (bar)	Mbr. (Nm) torque $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
THi 200	6	50 - 300	535	95	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	19
	10	85 - 400	540	95						475										
THi 250	6	40 - 325	660	110	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	30
	10	40 - 450	660	110						550										
THi 315	15	100 - 850	665	110	735	315	260	125	240	560	80	220	230	160	10	118	110	135	18	50
	6	70 - 420	780	130						650										
THi 400	10	70 - 550	780	130	900	400	310	160	300	650	100	270	280	199	12	150	140	167	22	85
	15	100 - 1100	940	160						775										
THi 500	20	100 - 1800	945	160	1025	500	385	190	355	775	130	325	340	242	13	190	180	202	22	130
	30	125 - 2750	955	160						775										
THi 630	15	200 - 1400	1090	200	1190	630	465	250	440	870	170	400	420	295	15	236	225	244	27	206
	20	200 - 2200	1095	200						870										
THi 710	30	200 - 3400	1100	200	1302	710	525	270	490	870	190	450	470	332	15	265	255	276	27	268
	50	200 - 5400	1110	200						870										
	30	500 - 3300	1245	240						1000										
	50	500 - 5500	1250	240						1000										
	70	500 - 8200	1260	240						1000										
	30	500 - 3800	1385	260						1100										
	50	500 - 6300	1390	260						1100										
	70	500 - 9400	1400	260						1100										

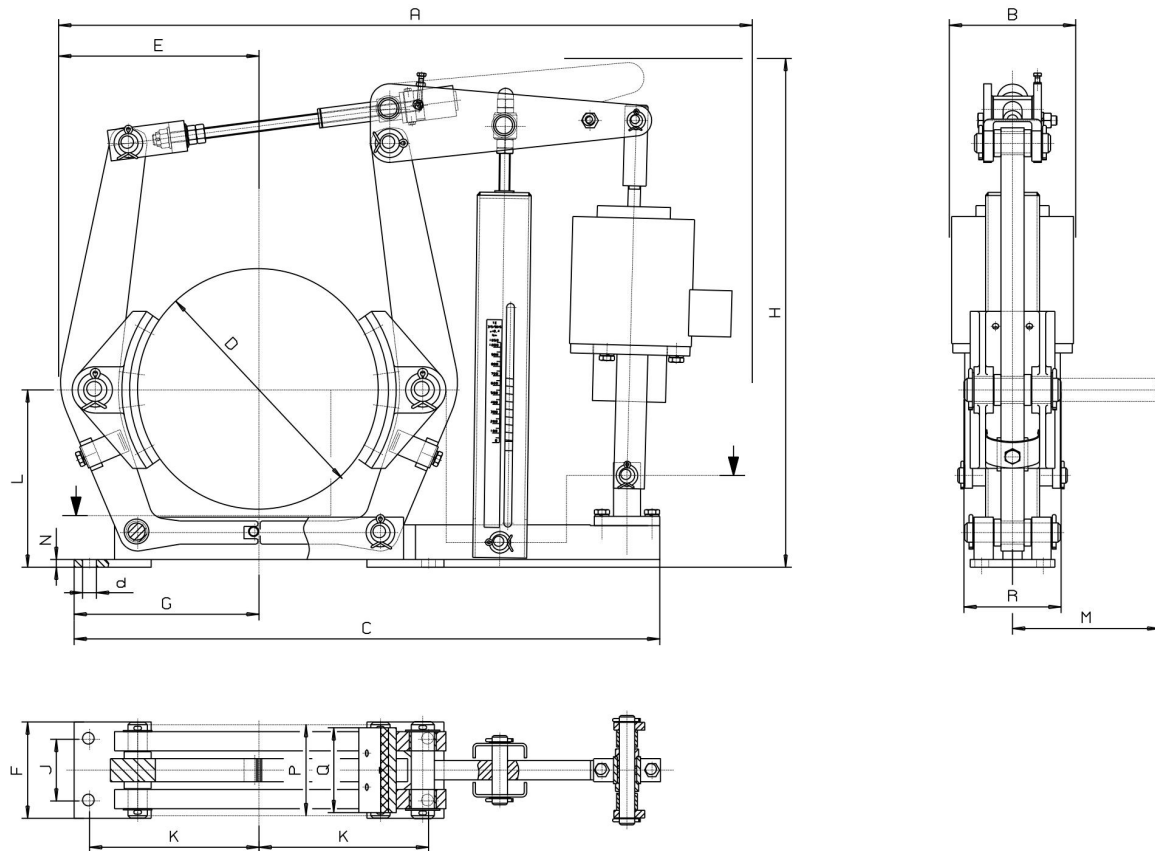


When ordering please advice:

- Brake type and pneumatic cylinder e.g.
TPi200/25/60
- with or without wear compensation
- options

Required pressure: 6 bar

Brake type	Pneumatic Cylinder	Mbr. (Nm) torque $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
TPi 200	Ø 25/50	50 - 300	535	95	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	19
	Ø 32/50	85 - 400	540	95						475										
TPi 250	Ø 25/50	40 - 325	660	110	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	30
	Ø 32/50	40 - 450	660	110						560										
	Ø 40/80	100 - 850	665	110						650										
TPi 315	Ø 25/50	70 - 420	780	130	735	315	260	125	240	650	80	220	230	160	10	118	110	135	18	50
	Ø 32/50	70 - 550	780	130						650										
	Ø 40/80	75 - 1050	785	130						660										
	Ø 50/80	90 - 1700	790	130						660										
TPi 400	Ø 32/50	80 - 575	935	160	900	400	310	160	300	765	100	270	280	199	12	150	140	167	22	85
	Ø 40/80	100 - 1100	940	160						775										
	Ø 50/80	100 - 1800	945	160						775										
	Ø 63/80	125 - 2750	955	160						775										
TPi 500	Ø 40/80	200 - 1400	1090	200	1025	500	385	190	355	870	130	325	340	242	13	190	180	202	22	130
	Ø 50/80	200 - 2200	1095	200						870										
	Ø 63/80	200 - 3400	1100	200						870										
	Ø 80/80	200 - 5400	1110	200						870										
TPi 630	Ø 63/80	500 - 3300	1245	240	1190	630	465	250	440	1000	170	400	420	295	15	236	225	244	27	206
	Ø 80/80	500 - 5500	1250	240						1000										
	Ø100/80	500 - 8200	1260	240						1000										
TPi 710	Ø 63/80	500 - 3800	1385	260	1302	710	525	270	490	1100	190	450	470	332	15	265	255	276	27	268
	Ø 80/80	500 - 6300	1390	260						1100										
	Ø100/80	500 - 9400	1400	260						1100										



When ordering please advice:

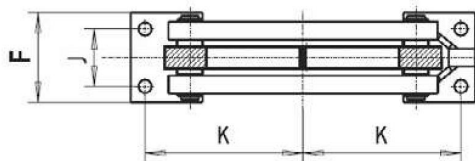
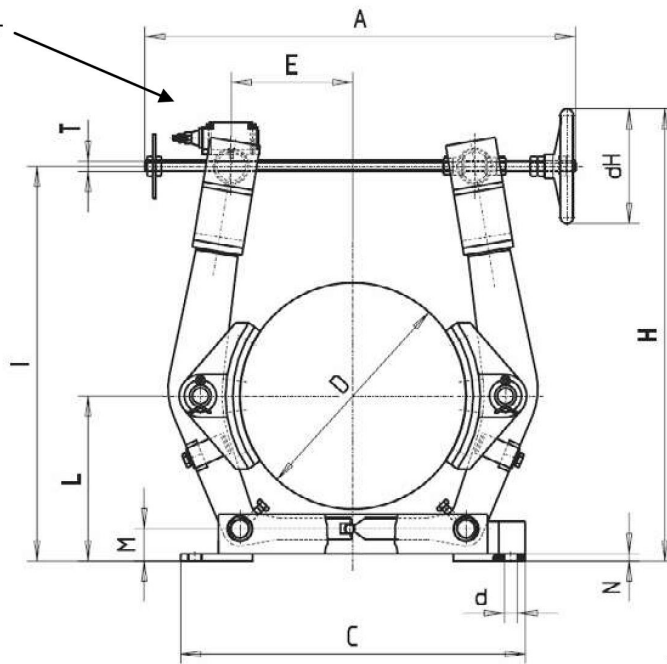
- Brake type and solenoid with brake torque e.g. TMB 200/GH115-40 Nm
- power supply voltage of solenoid
- with or without wear compensation
- options

To achieve the torque values as indicated under "25%" the solenoid needs to be connected with SCU as per data sheet M 1501 376 E.

Brake type	Mbr (Nm) / torque at duty cycle		Solenoid type	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
	25%	100%																			
TMB 200	170Nm	40Nm	GH 115	630	115	515	200	170	90	160	480	55	145	160	115	10	75	70	150	14	25
	380Nm	120Nm	GH 140	645	140																
TMB 250	380Nm	130Nm	GH 140	765	140	625	250	210	110	200	570	65	180	190	133	10	95	90	155	18	37
	790Nm	290Nm	GH 160	770	160																
TMB 315	475Nm	130Nm	GH 140	890	140	735	315	260	125	240	650	80	220	230	160	10	118	110	155	18	49
	1100Nm	360Nm	GH 160	895	160																
	1600Nm	550Nm	GH 180	910	180																
TMB 400	1100Nm	360Nm	GH 160	1040	160	900	400	310	160	300	765	100	270	280	199	12	150	140	180	22	80
	1700Nm	575Nm	GH 180	1055	180																
	2750Nm	900Nm	GH 215	1075	215																
TMB 500	1850Nm	550Nm	GH 160	1200	160	1025	500	385	190	355	870	130	325	340	242	13	190	180	185	22	130
	2750Nm	920Nm	GH 180	1210	180																
	3750Nm	1150Nm	GH 215	1230	215																
TMB 630	2500Nm	450Nm	GH 180	1360	180	1190	630	465	250	440	1000	170	400	420	295	15	236	225	215	27	206
	3300Nm	650Nm	GH 215	1380	215																
	5500Nm	2000Nm	GH 245	1400	245																
TMB 710	2900Nm	600Nm	GH 180	1500	180	1302	710	525	270	490	1100	190	450	470	332	15	265	255	215	27	268
	3800Nm	800Nm	GH 215	1520	215																
	6300Nm	2200Nm	GH 245	1540	245																



Option
Endschalter



required force on hand-wheel
at max. braking torque:

$$F1 = (M_{br} \times Ph) / (s1 \times i \text{ Hebel} \times \mu \times \eta \times D)$$

$$\mu = 0,4$$

$$S1 = \pi \times dH \text{ [m]}$$

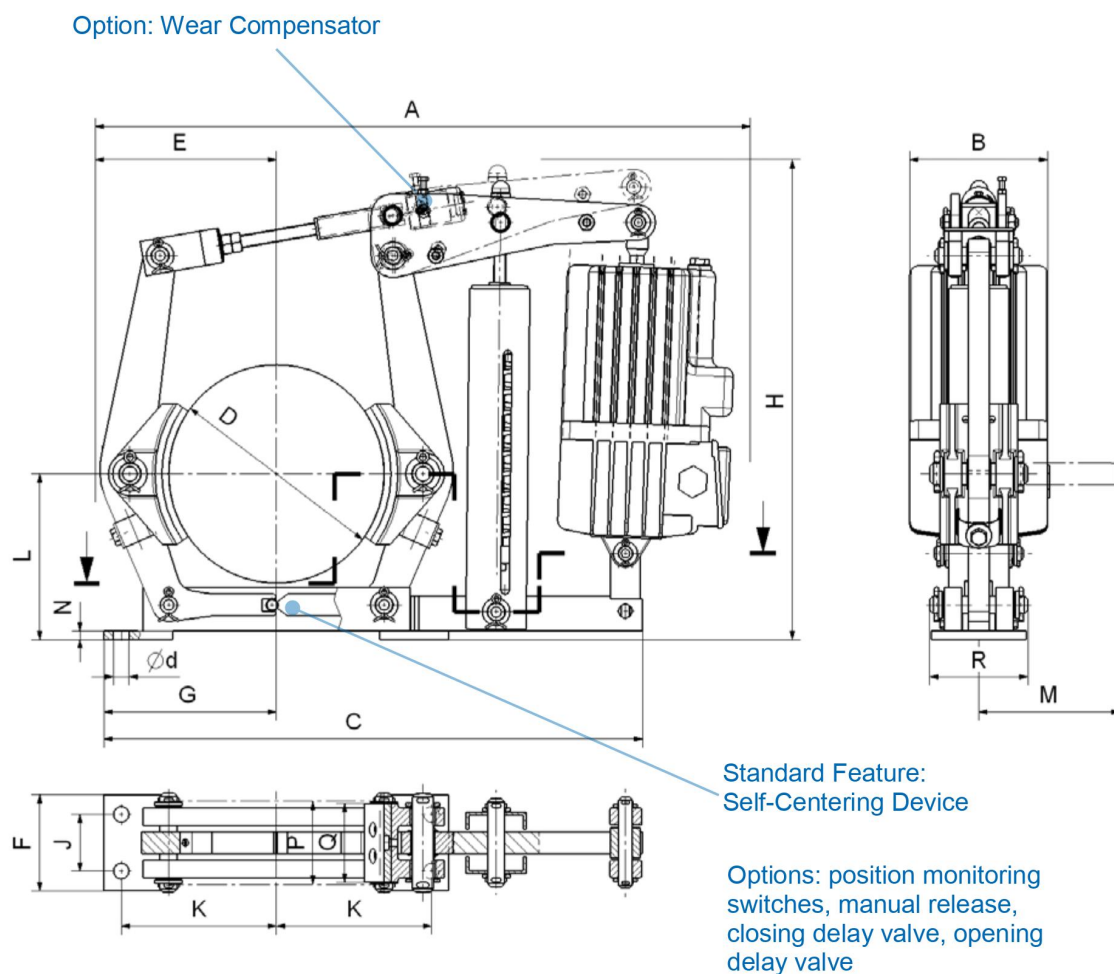
$$\text{SBM 250 – 315} \quad \eta = 0,2485$$

$$\text{SBM 400 – 500} \quad \eta = 0,2225$$

$$\text{SBM 630 – 710} \quad \eta = 0,2225$$

brake type	A	B	C	D	E	F	H	I	J	K	L	M	N	Q	R	T	dH	d	S1 [m]	i lever	thread pitch PH [m]	braking torque MBr [Nm]	hand force N1[N]
SBM 200	440	132	320	200	110	90	428	365	55	145	160	40	10	70	96	M14	125	14	0,3925	2,71	0,002	400	ca. 40
SBM 250	520	158	400	250	135	110	510	400	65	180	190	40	10	90	113	M14	140	18	0,4396	2,66	0,002	850	ca.60
SBM 315	600	180	480	315	170	125	630	550	80	220	230	45	10	110	135	M14	160	18	0,5024	2,73	0,002	1700	ca.80
SBM 400	730	213	600	400	212	160	692	602	100	270	280	47	12	140	167	M20	180	22	0,5652	2,38	0,0025	2750	ca.160
SBM 500	870	267	710	500	262	190	830	730	130	325	340	50	13	180	202	M20	200	22	0,628	2,35	0,0025	5400	ca.205
SBM 630	1000	332	880	630	327	250	985	860	170	400	420	60	15	225	244	M24	250	27	0,785	2,22	0,003	8200	ca.250
SBM 710	1080	356	980	710	370	270	1085	965	190	450	470	65	15	255	276	M24	250	27	0,785	2,22	0,003	9400	ca.255

The data sheet includes the limit switch for
indication brake released, but no more
accessories. Possible dimensional
discrepancies are to be considered.

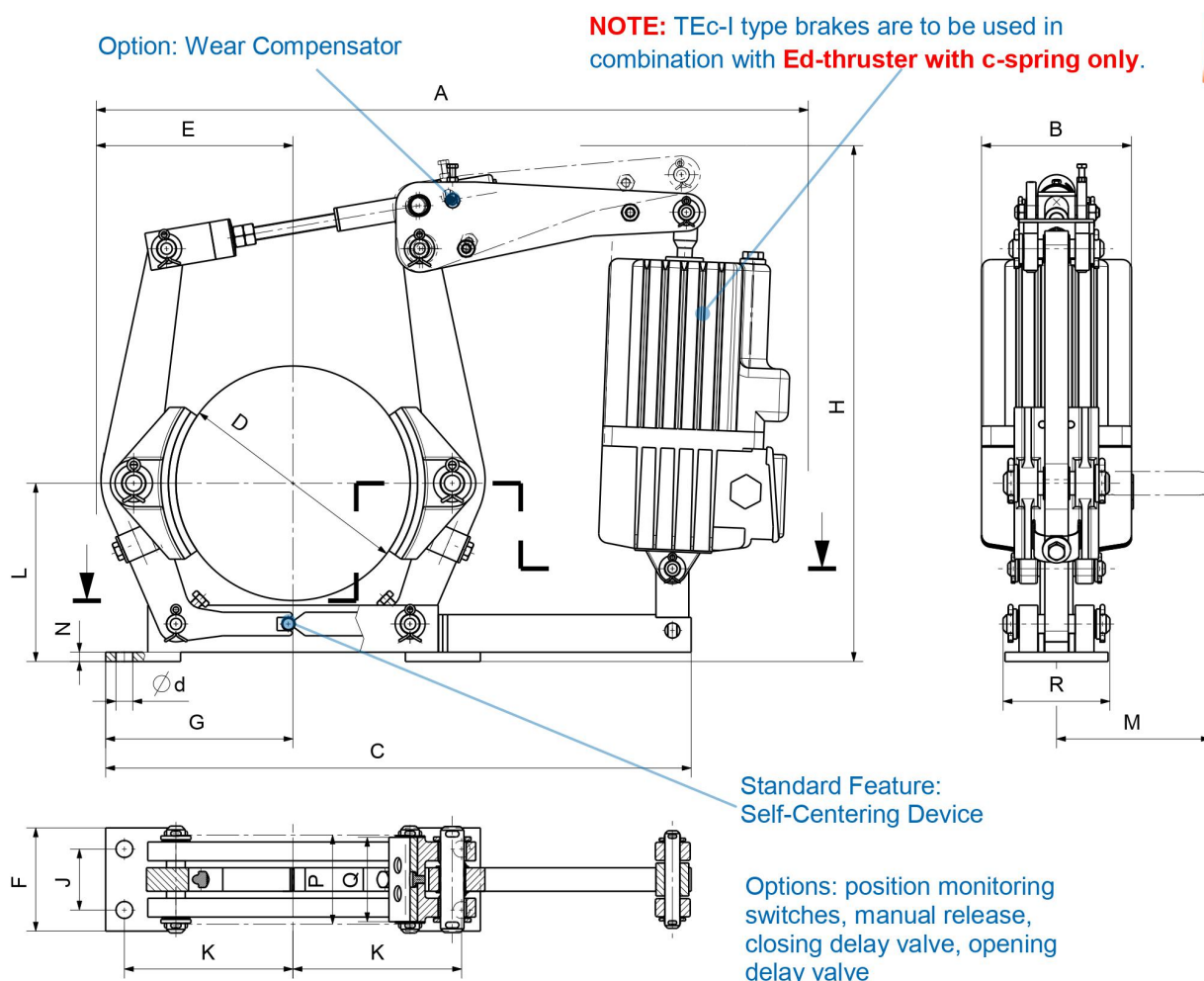


Brake Type with Eldro	Nm with $\mu = 0,4$			A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
	min	Max. 1	Max. 2																		
TE-I 8/23/5	50	200	300	640	160	515	203	170	190	160	475	146	83	178	125	10	87,4	82,4	83	17,5	19
TE-I 8/30/5	85	-	400																		
TE-I 10/23/5	40	300	325	760	160	595	254	210	202	170	570	158	102	213	153	33	107	101,6	113	17,5	30
TE-I 10/30/5	40	-	450								580										
TE-I 10/50/6	100	-	850	800	195																
TE-I 13/23/5"	70	-	420	885	160						660										
TE-I 13/30/5"	70	-	550			700	330	270	286	206		228	146	251	176	37	146	140	126	21,5	50
TE-I 13/50/6"	75	800	1050	925	195						670										
TE-I 13/80/6"	90	-	1700																		
TE-I 16/30/5	80	-	575	1030	160						765										
TE-I 16/50/6	100	-	1100			860	406	315	328	260		274	190	308	251	32	172	165	167	26	85
TE-I 16/80/6	100	1400	1800	1075	195						795										
TE-I 16/121/6	125	-	2750		240																
TE-I 19/50/6	200	-	1400																		
TE-I 19/80/6	200	-	2300	1190	195																
TE-I 19/121/6	200	2800	3400			962	483	385	400	292	870	330	235	337	303	13	222	216	202	26	130
TE-I 19/201/6	200	-	5400	1225	240																
TE-I 23/121/6	500	-	3300																		
TE-I 23/201/6	500	5450	5500	1365	240	1138	584	460	485	388	1030	406	298	403	348	15	286	280	232	33	206
TE-I 23/301/6	500	-	8200																		

Max 1 = max torque for AISE-Applications

Max. 2 = max. torque for General Applications

kg* = without thruster



Brake Type with Eldro	Nm with $\mu = 0,4$			A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
	min	Max. 1	Max. 2																		
TEc-I 8/23/5	50	200	300	640	160	515	203	170	190	160	475	146	83	178	125	10	87,4	82,4	83	17,5	16
TEc-I 8/30/5	85	-	400																		
TEc-I 10/23/5	40	300	325	760	160	595	254	210	202	170	570	158	102	213	153	33	107	101,6	113	17,5	27
TEc-I 10/30/5	40	-	450								580										
TEc-I 10/50/6	100	-	850	800	195																
TEc-I 13/23/5	70	-	420	885	160						660										
TEc-I 13/30/5	70	-	550			700	330	270	286	206		228	146	251	176	37	146	140	126	21,5	46
TEc-I 13/50/6	75	800	1050	925	195						670										
TEc-I 13/80/6	90	-	1700																		
TEc-I 16/30/5	80	-	575	1030	160						765										
TEc-I 16/50/6	100	-	1100																		
TEc-I 16/80/6	100	1400	1800	1075	195	860	406	315	328	260	795	274	190	308	251	32	172	165	167	26	80
TEc-I 16/121/6	125	-	2750		240																
TEc-I 19/50/6	200	-	1400																		
TEc-I 19/80/6	200	-	2300	1190	195																
TEc-I 19/121/6	200	2800	3400			962	483	385	400	292	870	330	235	337	303	13	222	216	202	26	125
TEc-I 19/201/6	200	-	5400	1225	240																
TEc-I 23/121/6	500	-	3300																		
TEc-I 23/201/6	500	5450	5500	1365	240	1138	584	460	485	388	1030	406	298	403	348	15	286	280	232	33	200
TEc-I 23/301/6	500	-	8200																		

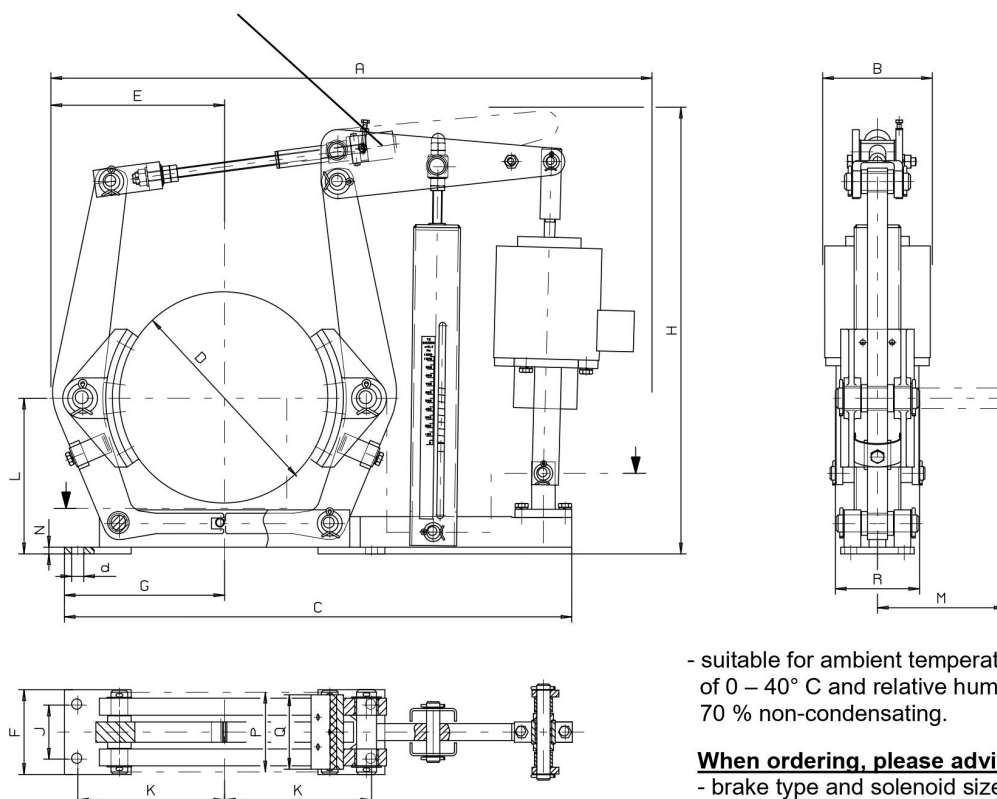
Max 1 = max torque for AISE-Applications

Max. 2 = max. torque for General Applications

kg* = without thruster



option:
wear compensator device



- suitable for ambient temperature range
of 0 – 40° C and relative humidity of max.
70 % non-condensating.

When ordering, please advice

- brake type and solenoid size, e.g.
TM-I-40-13-GH160
- with or without wear compensator device
- options
- input voltage for SCU

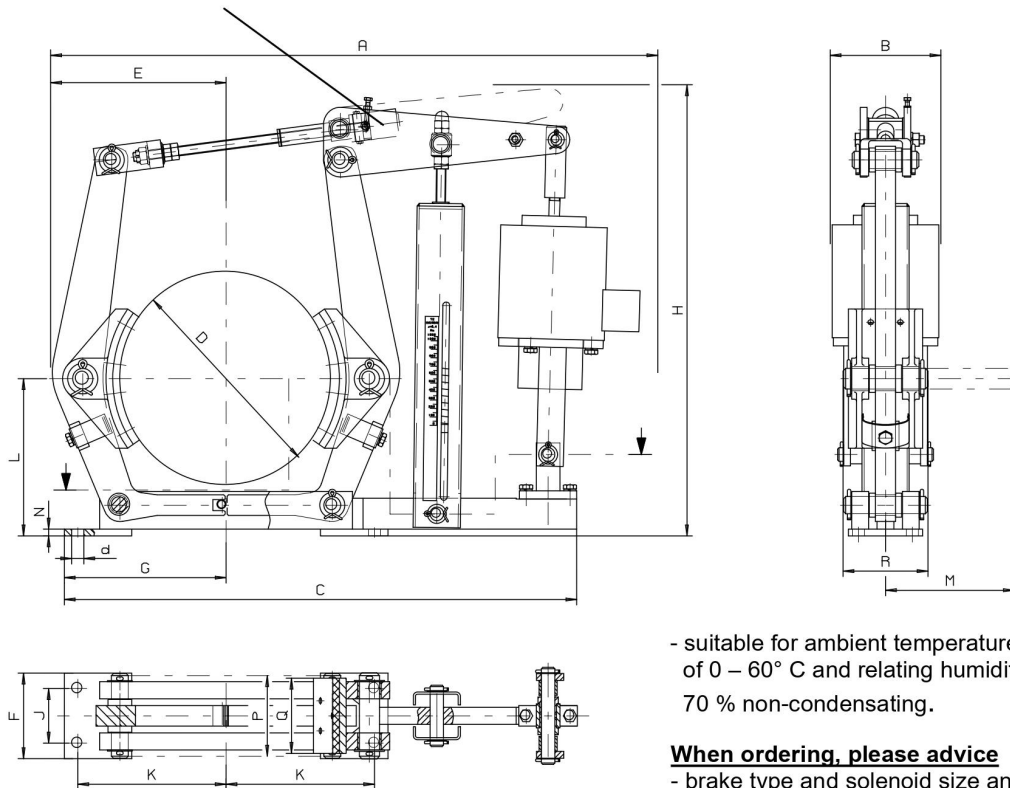
Brake-Type	Solenoid size	Torque Range in Nm at $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kgs*
TM-I 8	GH 140	50 – 300	640	160	515	203	170	190	160	475	146	83	178	115	10	83	76	96	17,5	19
TM-I-10	GH 140	40 – 325	760	160																
	GH 160	40 – 450			595	254	210	202	170	570	158	102	213	133	33	95	89	113	17,5	30
TM-I 13	GH 180	100 – 850	800	195						580										
	GH 140	70 – 550	885	160						650										
TM-I 16	GH 160	75 – 1050	925	195	700	330	260	286	206	660	228	146	251	160	37	146	140	135	21,5	50
	GH 180	90 – 1700																		
TM-I 19	GH 140	80 – 575	1030	160						765										
	GH 160	100 – 1100																		
	GH 180	100 – 1800	1075	195	860	406	315	328	260	775	274	190	308	199	32	172	165	167	26	85
	GH 215	125 – 2750		240																
TM-I 23	GH 160	200 – 1400	1225	195																
	GH 180	200 – 2300			1025	482	385	419	292	870	330	235	337	242	13	222	216	202	27	130
	GH 215	200 – 3400	1215	240																
TM-I 25	GH 215	500 – 3300	1365	240	1190	584	465	485	388	1000	406	298	403	295	15	286	279	244	33	206
	GH 245	500 – 5500																		

kgs* = without solenoid

The solenoids used for operation of shoe brakes TM-I are to be connected via SCU solenoid control unit SCU as per data sheet M 1501376, page 1+2. Indicated torques are only available in combination with SCU.



option:
wear compensator device



- suitable for ambient temperature range
of 0 – 60° C and relating humidity of max.
70 % non-condensating.

When ordering, please advice

- brake type and solenoid size and torque, e.g.
TM-I-60-13-GH160
- with or without wear compensator device
- options
- input voltage for SCU

Brake-Type	Solenoid size	Torque Range in Nm at $\mu = 0,4$	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kgs*
TM-I 8	GH 140	50 – 225	640	160	515	203	170	190	160	475	146	83	178	115	10	83	76	96	17,5	19
TM-I-10	GH 140	40 – 245	760	160						570	158	102	213	133	33	95	89	113	17,5	30
	GH 160	40 – 335			595	254	210	202	170	580										
	GH 180	100 – 635	800	195																
TM-I 13	GH 140	70 – 412	885	160						650										
	GH 160	75 – 780	925	195	700	330	260	286	206	660	228	146	251	160	37	146	140	135	21,5	50
	GH 180	90 – 1275																		
TM-I 16	GH 140	80 – 430	1030	160						765										
	GH 160	100 – 825																		
	GH 180	100 – 1350	1075	195	860	406	315	328	260	775	274	190	308	199	32	172	165	167	26	85
	GH 215	125 – 2060		240																
TM-I 19	GH 160	200 – 1050	1225	195																
	GH 180	200 – 1725			1025	482	385	419	292	870	330	235	337	242	13	222	216	202	27	130
	GH 215	200 – 2500	1215	240																
TM-I 23	GH 215	500 – 2475	1365	240	1190	584	465	485	388	1000	406	298	403	295	15	286	279	244	33	206
	GH 245	500 – 4125																		

kgs* = without solenoid

The solenoids used for operation of shoe brakes TM-I are to be connected via SCU solenoid control unit SCU as per data sheet M 1501376, page 1+2. Indicated torques are only available in combination with SCU.



Mode of Operation

General Notes

When operating the dual coil solenoids series GH via Solenoid Control Unit, they are working with a starting force for a short time. The holding force is equivalent to a 100 % ED duty factor coil. By energizing the solenoid via Solenoid Control Unit, both solenoid coils are connected in parallel. Thus the solenoid is working with high force during opening the brake. After having reached the brake open position within a preset time of approx. 1 – 1,5 sec., the coil connection is switched to series by means of the integrated circuit board.

Connecting at site

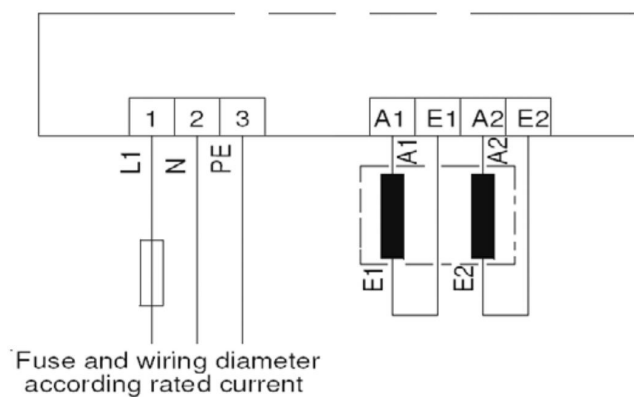
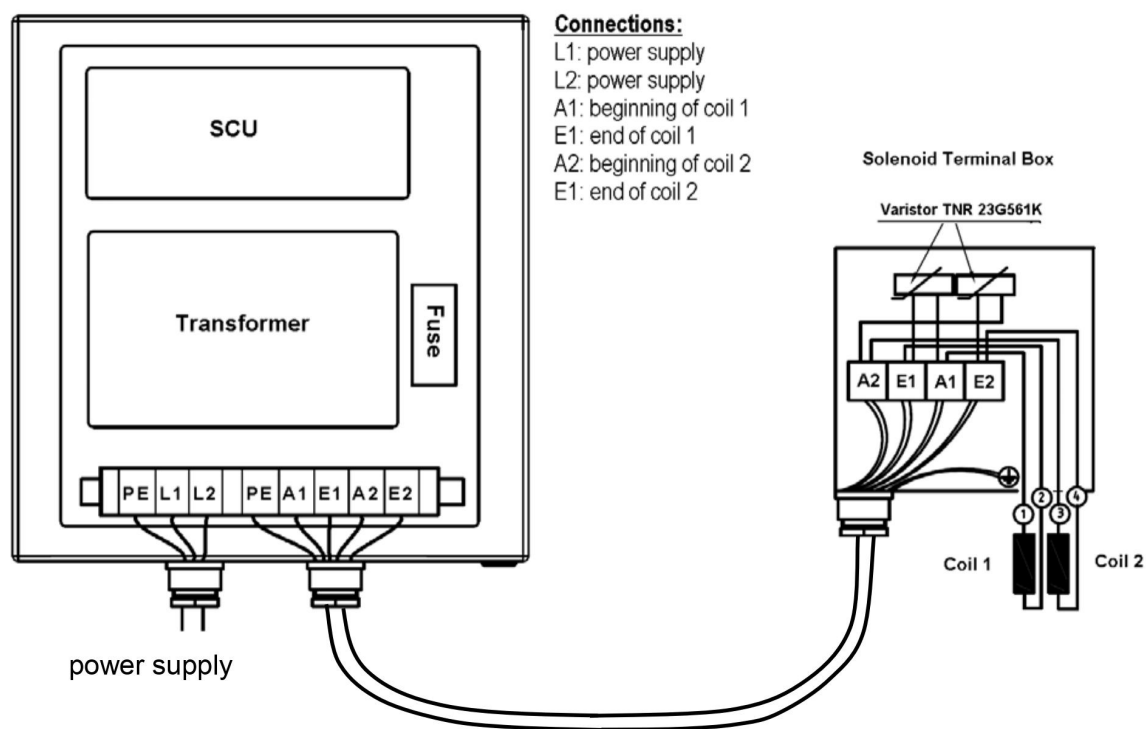
The supply voltage is connected to the SCU at its terminals ~ and PE using adequate cross section conductors. For connecting the solenoid with the SCU via terminals A1/E1 and A2/E2 conductors with a 2,5 mm² cross section are to be applied.



Solenoid Control Unit type	SCU 3.30	SCU 3.50	SCU 3.60
for Input voltage	> 240 V AC, 2 phase	200-240 V AC, 1 phase	110-120 V AC, 1 phase
output voltage	205 V DC	205 V DC	102 V DC
protection class	IP54	IP 65	
ISO-housing dimensions l x w x h [mm]	200 x 300 x 155	110 x 160 x 100	
weight [kgs]	15 kg	0,9	
Output current (cold, coils in parallel)	2 – 10 A	2 – 10 A	

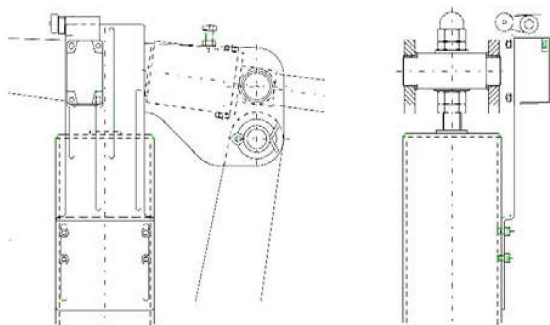
WARNING

- ⇒ The device must only be used for the described purposes.
- ⇒ Installation and commissioning must be carried-out by sufficient skilled staff.
- ⇒ All applicable standards and regulation must be kept, especially the DIN VDE.
- ⇒ Nominal voltage and current must not be increased.

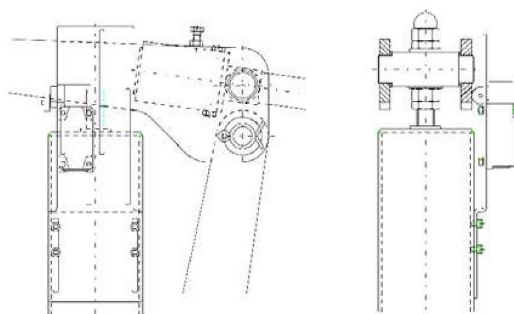
Connection Diagram for SCU 3.50 & SCU 3.60 (single phase AC input)

Connection Diagram sample for SCU 3.30 (two phase AC input)




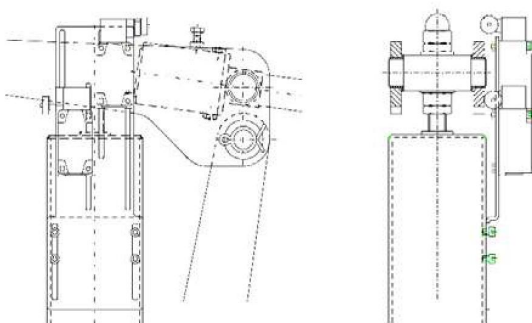
mechanical limit switch „brake open“ as per
WN 200/51 with switch Z4VH336-11z



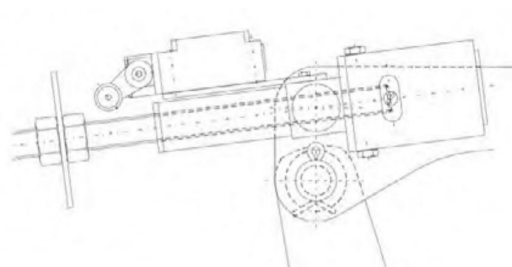
mechanical limit switch „brake closed“ as
per WN 200/52 with switch Z4VH336-11z



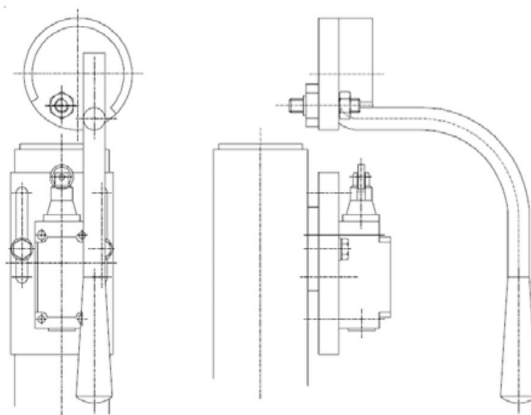
mechanical twin limit switch „open & closed“ as
per WN 200/53 with switch Z4VH336-11z



mechanical twin limit switch „pad wear limit“ as
per WN 200/04 with switch Z4VH336-11z

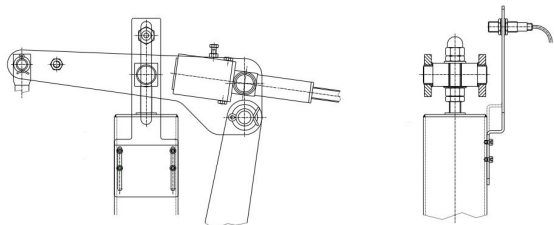


Emergency manual release with mechanical limit switch ZR336-11z for indication
„manual release engaged“ as per WN 200/03

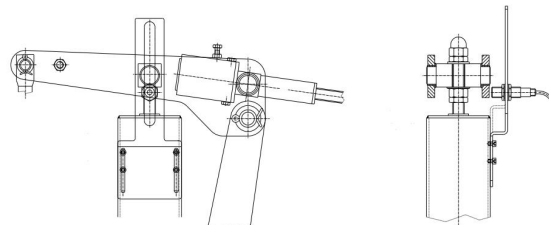




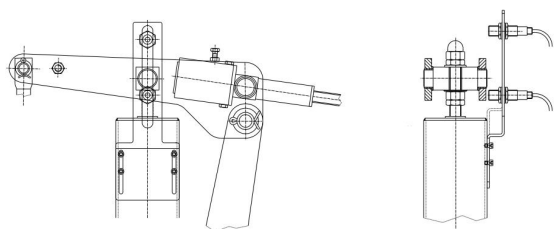
inductive proximity switch „brake open“ as
per WN 200/54 with sensor Bi5-M18-AZ3X



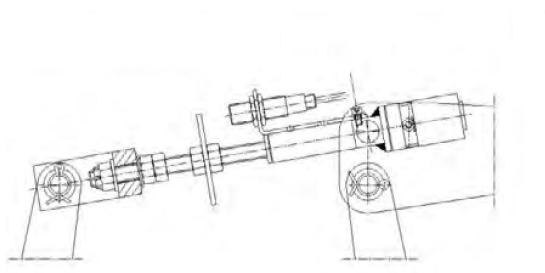
inductive proximity switch „brake closed“ as
per WN 200/55 with sensor Bi5-M18-AZ3X



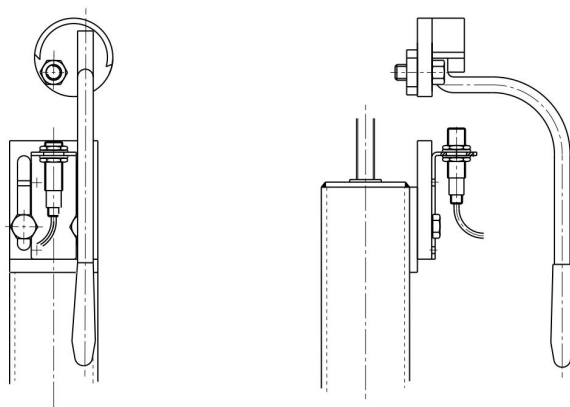
inductive proximity switch „open & closed“ as
per WN 200/56 with sensor Bi5-M18-AZ3X



inductive proximity switch „pad wear limit“ as
per WN 200/04-1 with sensor Bi5-M18-RZ3X



Emergency manual release with inductive proximity switch Bi5-M18-AZ3X for indication
„manual release engaged“ as per WN 200/03



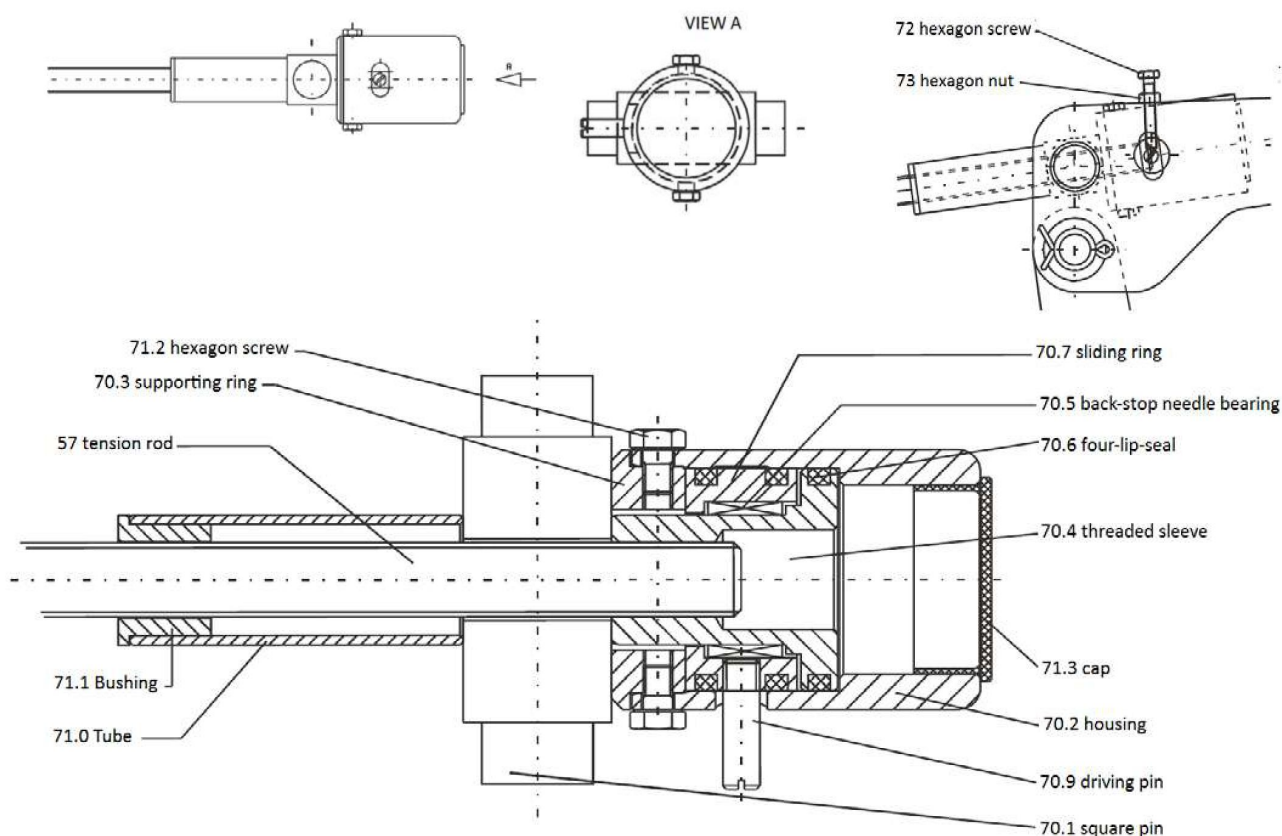


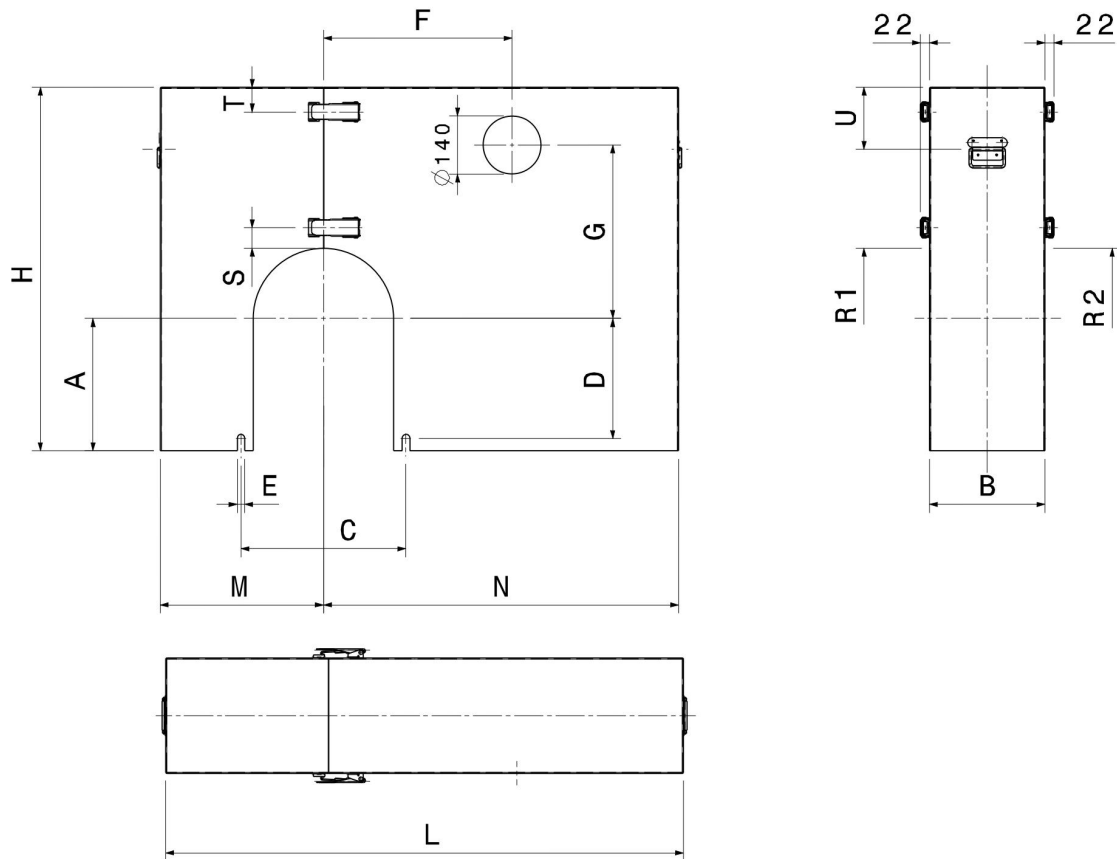
Lining Wear Compensator Device

The purpose of this device is to compensate for the wear of brake linings. With correct adjustment, the wear compensator will maintain an almost constant reserve stroke. Inspection of reserve stroke is necessary even with a correct adjustment of wear compensator, especially during commissioning and the initial time of commercial operation.

Mode of Operation

assumption: the wear compensator is correctly adjusted according to our manual. When opening and closing the brake, the position of the drive pin (70.9) remains unchanged, until the reserve stroke of the thruster is reduced due to the wear of the linings. Upon decrease of reserve stroke, the adjusting bolt (72) will contact the drive pin (70.9) when closing the brake. The drive pin is rotated counter clock-wise by a certain angle. The sliding ring (70.7) is rotated by the same degree as the drive pin. The threaded sleeve (70.4) does not move because the back stop needle bearing (70.5) is rotating free in counter clock-wise direction. With the subsequent release of the brake, the edge of the drive pin drilling will contact and rotate the drive pin and the sliding ring in clock-wise direction. When rotated clock-wise, the back stop needle bearing is locked and transfers the rotation onto the threaded sleeve. When rotating the threaded sleeve, the tension rod (57) is screwed into the wear compensator, reducing the distance between the two brake arms, ergo between the lining surfaces. Thus, the reserve stroke is increased. Depending on the amount of wear per brake application, the wear compensator may need several operating cycles, until the initial reserve stroke level is reached again. At this point, the drive pin will touch the adjusting bolt and the drilling for drive pin respectively when opening and closing the brake, however, there is not further rotation of the drive pin. If the initial reserve stroke level should not be reached again, a re-adjustment of wear compensator is required. If the reserve stroke level should be continuously reduced in spite of having re-adjusted the wear compensator, the wear rate per stop exceeds the compensating capacity of the wear compensator and an additional manual wear compensation is required. The quadring seals (70.6) avoid any dust or dirt to enter into the system and they generate sufficient friction to protect the device from vibrations.

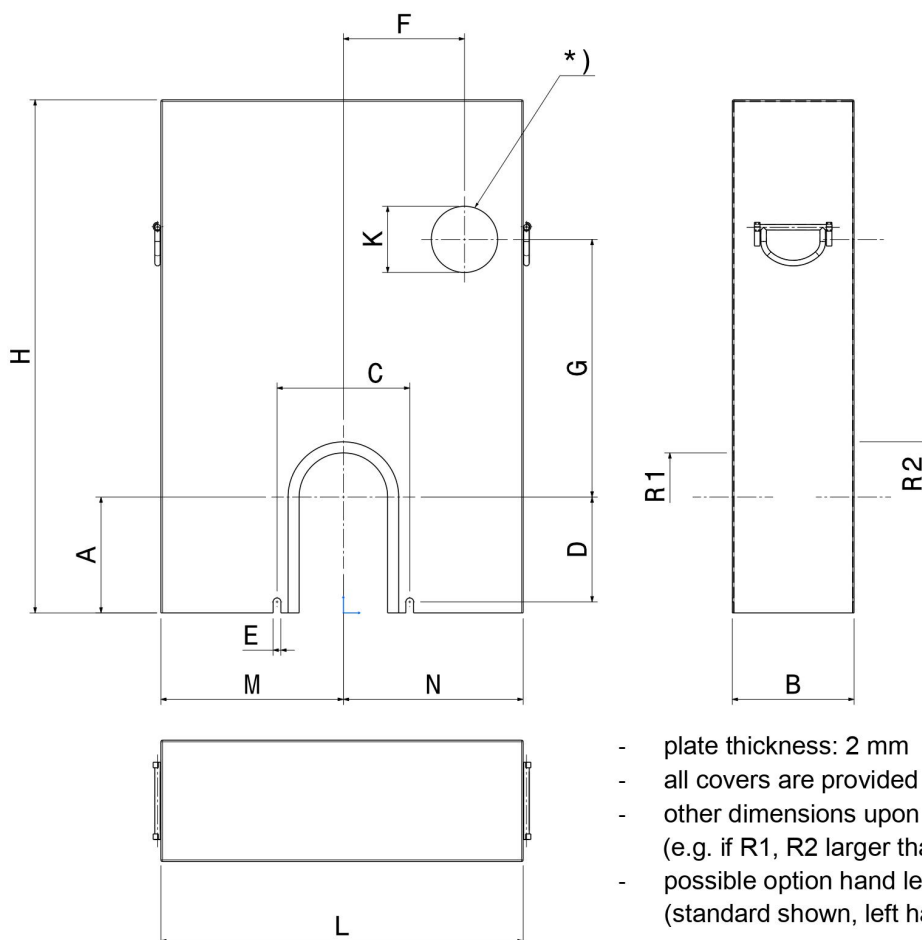




- plate thickness: 2 mm
- all covers are provided with handles
- all covers are split as of type TE 400 **)
- all splitted covers provided with lock
- other dimensions upon request
(e.g. if R1, R2 larger than max. value)
- possible option hand lever hole (standard shown, left hand operation) *)
- number of box locks: TE 160-315 = no lock, TE 400 = 1 lock, TE 500-710 = 2 locks

Brake type	A	B	F	C	D	E	H	L	M	N	S	T	U	R1/R2 max.	G	K Ø	Thread rod
TE 160	120	220	190	160	100	8,5	420	640	160	480			100	65	190	140	bolt Ø16
TE 200	155	220	215	140	120	14	540	700	180	520			100	50	235	140	M12 x 105
TE 250	175	220	270	180	150	14	580	830	220	610			100	70	290	140	M12 x 105
TE 315	215	220	317	240	185	14	680	955	270	685			150	100	330	140	M12 x 105
TE 400	260	260	395	320	233	18	790	1105	320	785	60	60	150	140	395	140	M16 x 105
TE 500	320	280	457	400	290	18	880	1255	395	860	60	60	150	170	420	140	M16 x 105
TE 630	400	280	542	510	360	18	1010	1395	470	925	60	60	150	225	475	140	M16 x 105
TE 710	450	280	595	590	405	18	1110	1530	535	995	60	60	150	265	530	140	M16 x 105

When ordering advise: drum brake type
 dimension R1
 dimension R2

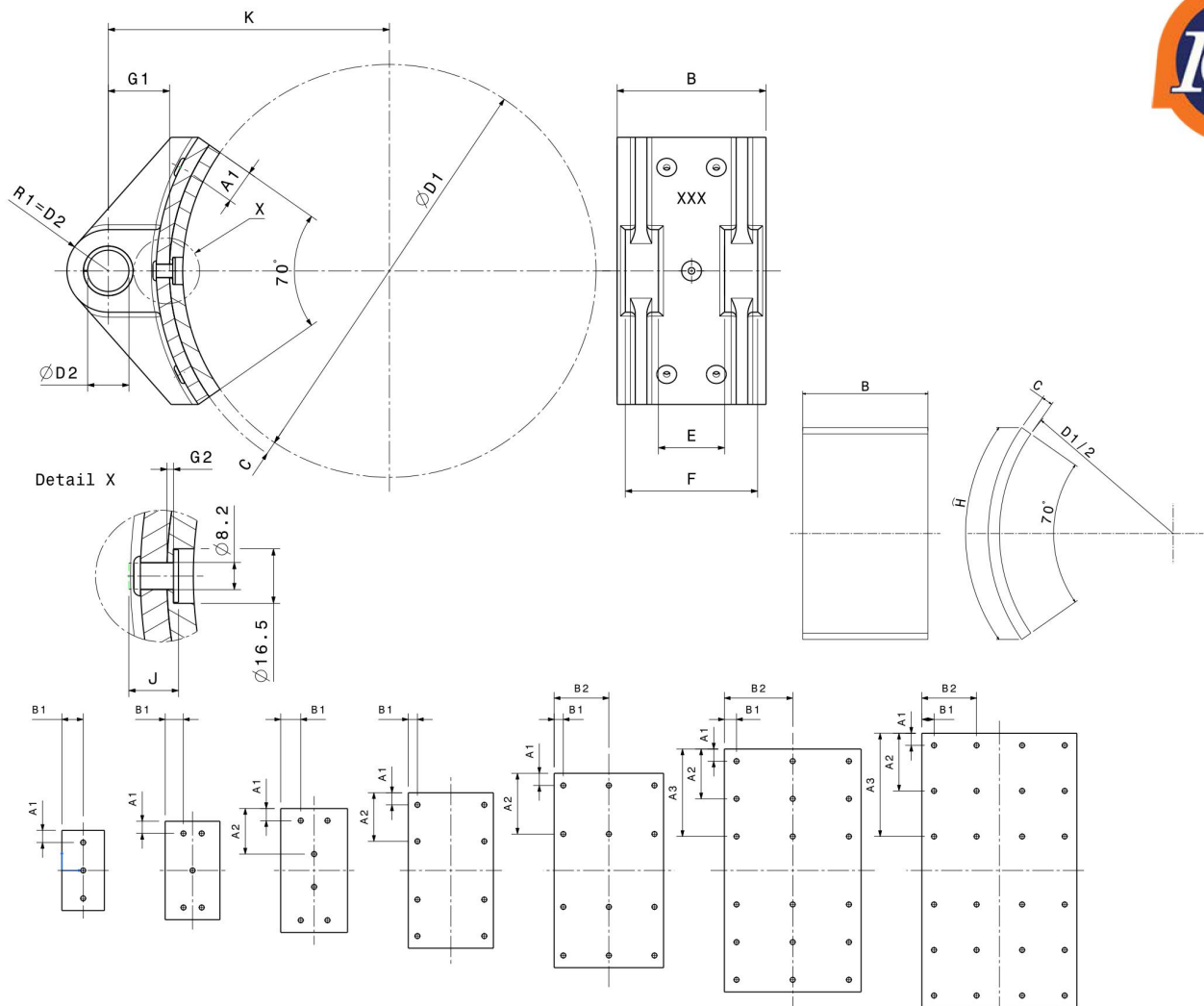


- plate thickness: 2 mm
- all covers are provided with handles
- other dimensions upon request (e.g. if R1, R2 larger than max. value)
- possible option hand lever hole (standard shown, left hand operation) ^{*)}

brake type	A	B	F	C	D	E	H	L	M	N	R1/R2 max.	G	K Ø	thread rod
SBH 200	155	220	150	140	120	14	775	530	275	255	50	313	130	M12 x 105
SBH 250 / 23;30	175	220	142	180	150	14	875	535	295	240	70	397	130	M12 x 105
SBH 250 / 50	175	220	200	180	150	14	915	600	295	305	70	397	130	M12 x 105
SBH 315 / 23;30	215	220	219	240	185	14	945	665	340	325	100	467	130	M12 x 105
SBH 315 / 50;80	215	220	219	240	185	14	970	665	340	325	100	467	130	M12 x 105
SBH 400	260	260	242	320	233	18	1040	800	420	380	140	494	130	M16 x 105
SBH 400 / 121	260	260	224	320	233	18	1200	910	510	400	140	507	130	M16 x 105

When ordering advise:

 drum brake type
 dimension R1
 dimension R2



Ø 200 Ø 250 Ø 315 Ø 400 Ø 500 Ø 630 Ø 710
when order brake drum diameter Ø D
shoes please advise: material: aluminium, cast iron,
fabricated steel with or without
drillings for riveting

when ordering please advise:
drum diameter Ø D,
friction coefficient $\mu = 0,4$

Ø d ₁	B	c	Ø d ₂	e	f	g ₁	g ₂	h	j	k	drillings for riveting					no. of rivets
											a ₁	a ₂	a ₃	b ₁	b ₂	
200	70	8	20	35	65	32	2	132	15	140	20	-	-	35	-	3
250	90	8	25	40	80	37	2	162	15	170	20	-	-	30	45	5
315	110	10	30	50	100	44,5	3	204	18	212	20	75	-	33	55	6
400	140	10	35	62	125	50	3	256	18	260	20	80	-	15	-	8
500	180	12	40	80	160	58	3	320	20	320	20	100	-	15	90	12
630	225	12	45	100	200	63	3	400	20	390	20	82	144	20	112,5	18
710	255	15	50	112	224	70	3	452	22	440	20	95	170	20	90	24

other dimensions upon request

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