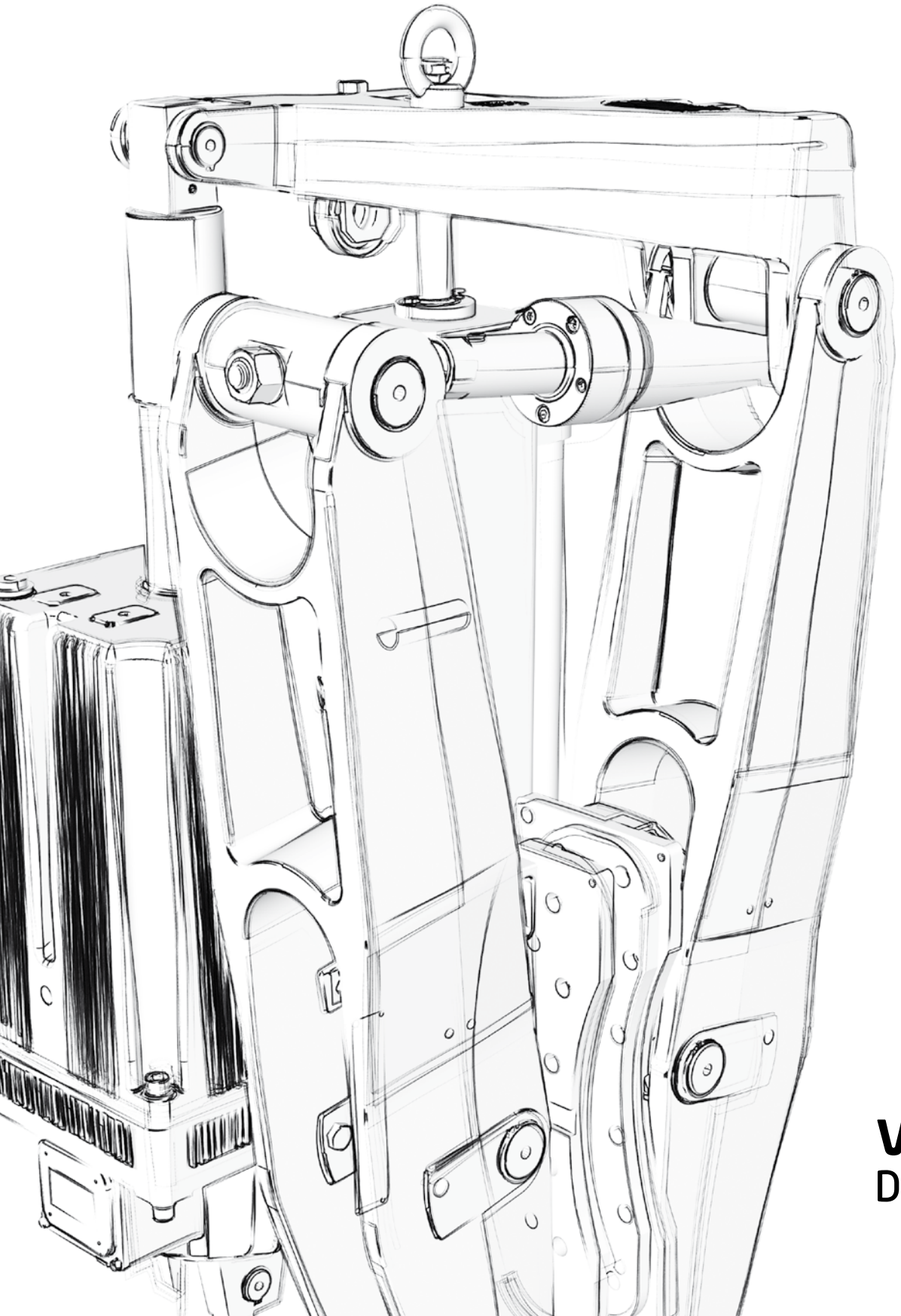
TECHNICAL DATA
ELECTROHYDRAULIC DISC BRAKE FEHD-G2



VULKAN
DRIVE TECH

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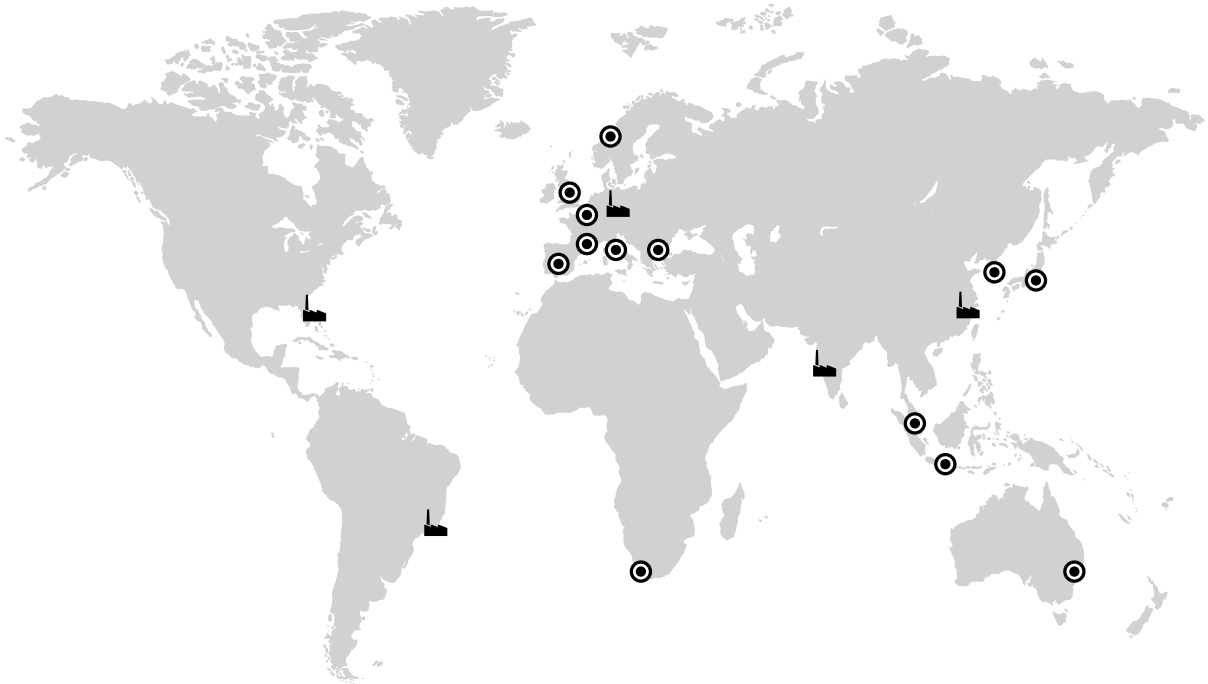
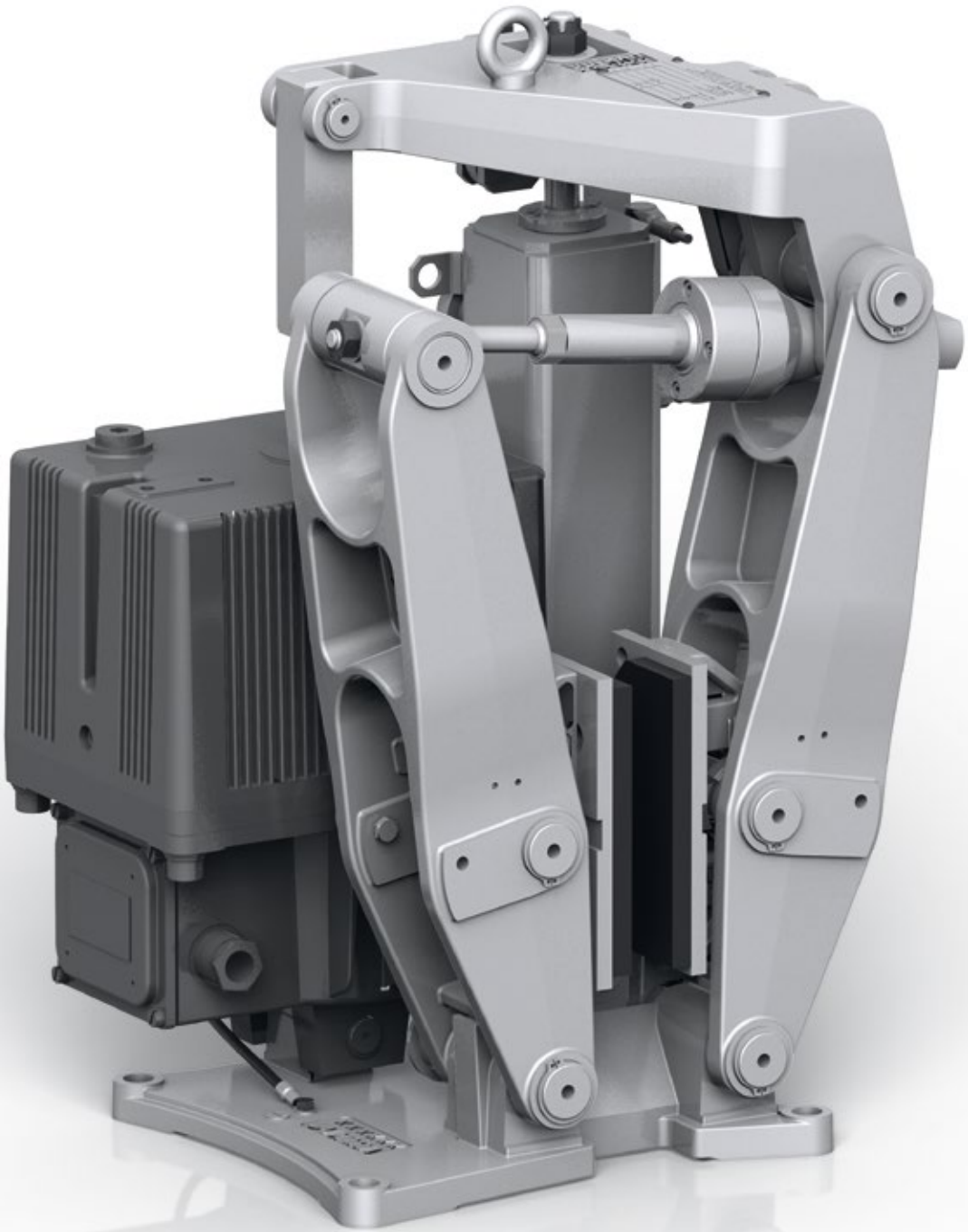
VULKAN Drive Tech is a brand of the VULKAN Group with more than 130 years of experience in the design and manufacture of couplings, mounts and high-performance braking systems for demanding industrial drives.

Torque for heavy Duties – worldwide

VULKAN Drive Tech – that means five production sites, 18 companies and more than 50 agencies on all five continents. This ensures that our technical expertise and service are available on site worldwide.



LAUNCHING

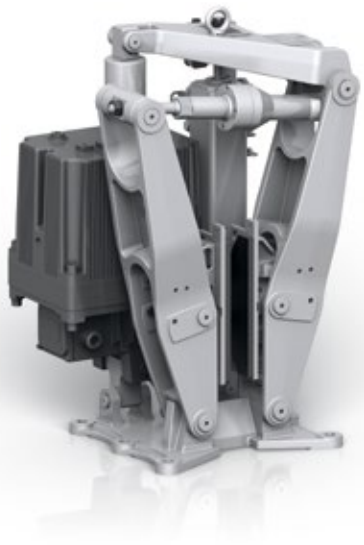


FEHD-G2-I

NOW AVAILABLE!
THE ELECTROHYDRAULIC DISC BRAKE **FEHD-G2**

The new generation of VULKAN Electrohydraulic Brakes, the **FEHD generation 2**, brings countless benefits in terms of operating efficiency, maintenance and competitiveness.

Traditionally used as a service brake in applications that require a high number of maneuvers. Electrohydraulic Brakes are spring applying and electrohydraulic released with threephase power (220, 380 or 440 VAC). The design is according to the standards DIN 15.433 part 2, DIN 15.430 and follows the requirements of the European Commission Machinery Directive.

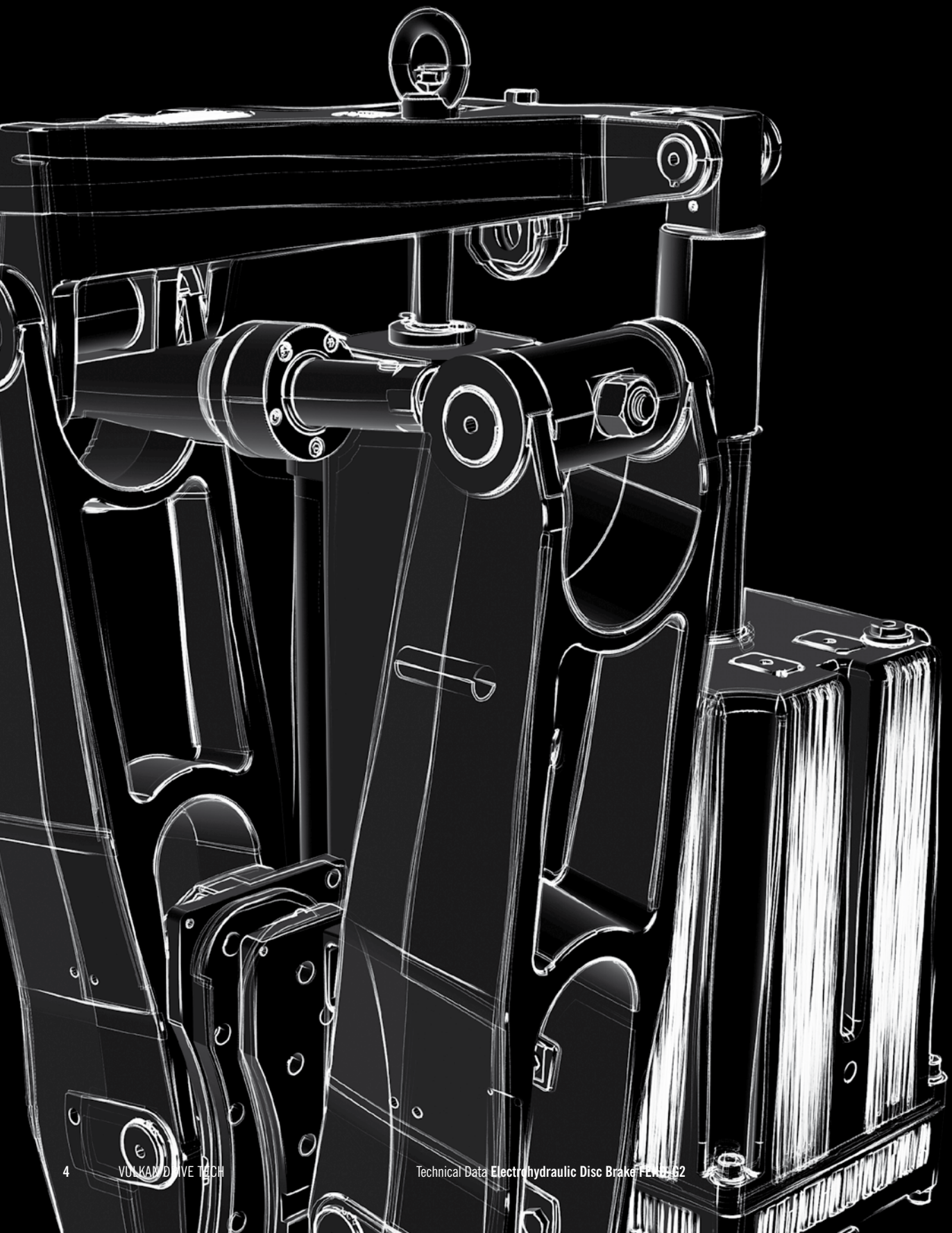


FEHD-G2-II

FEHD-G2-III

FEHD-G2-IV

ELECTROHYDRAULIC DISC BRAKES



FEHD-G2
ADVANTAGES

BRAKING TORQUE RANGE: 100 - 29,910 Nm / DISC DIAMETER: Ø 250 - 1,250 mm

Advantages

- Highest efficiency: lowest loss of power per millimeter of pad worn-out
- New system to guarantee even balance clearance between pads and disc
- New automatic pads clearance recovery system, without manual adjustement requirement
- New brake arms design
- Easy brake force setting
- Manual unblock lever with locking system to brake opening position
- Electrical grounding according to the standards: NR-10, NR-12, NBR-5410 and IEC-60204-1

Main applications for Electrohydraulic Disc Brakes

- EOT Cranes: bogie longitudinal and transversal travel, with proportional braking option
- Mills
- Furnace positioning
- Car dumper system
- Yard machinery

This new generation of brakes also offers a range of **tailor made solutions,** such as: monitoring sensors, position sensors to detect open/close brake status, worn sensors, organic and sintered brake pads, among others.

DISC BRAKE SELECTION PROCEDURE

CODE DESCRIPTION

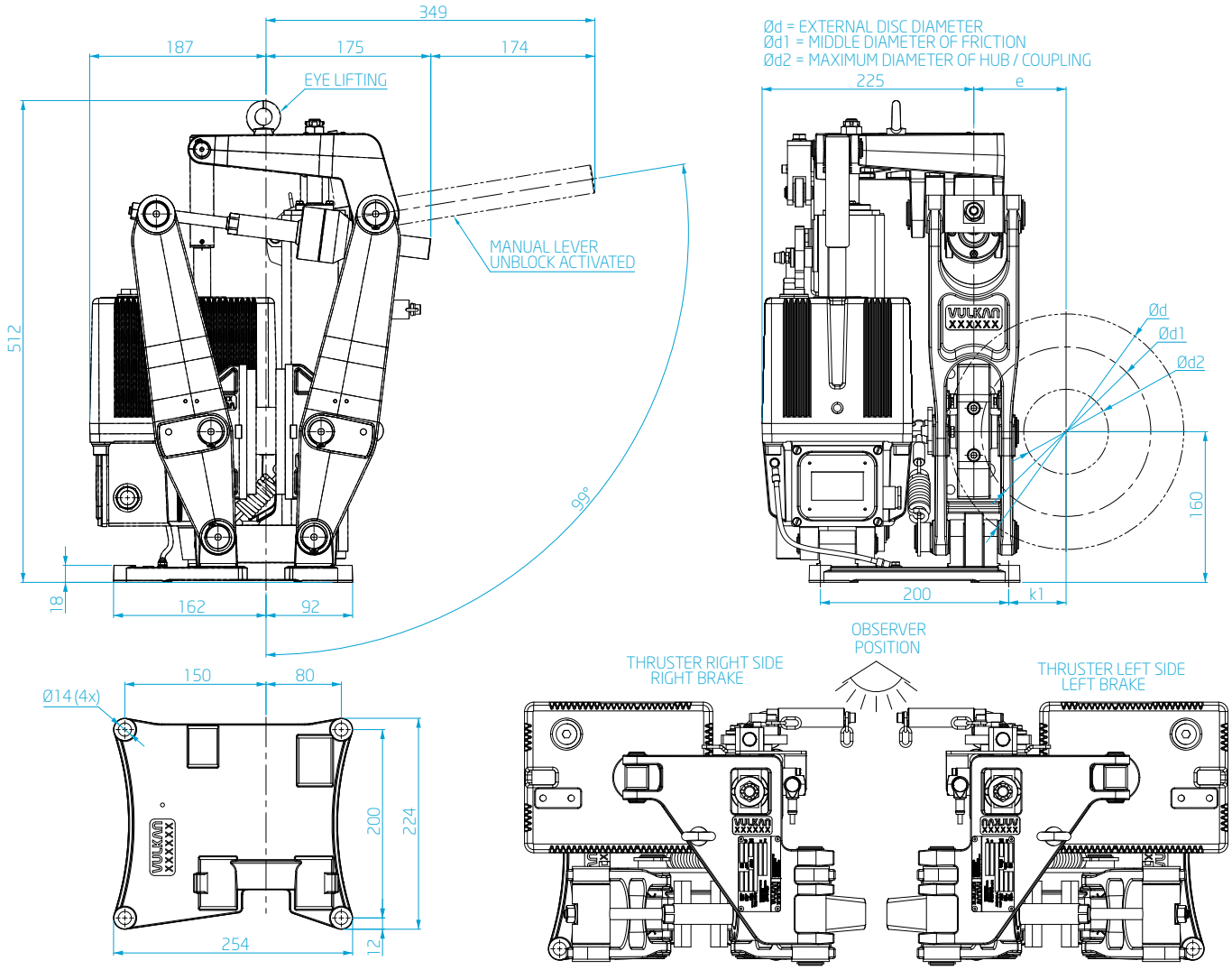
EXAMPLE FEHD-G2-I-AEH-50-6-0-V1-RA-30-D-SP-00-DA-PP-PO

Category	Code	Description
Brake Type	FEHD-G2-I	Electrohydraulic Disc Brake FEHD-G2-I
	FEHD-G2-II	Electrohydraulic Disc Brake FEHD-G2-II
	FEHD-G2-III	Electrohydraulic Disc Brake FEHD-G2-III
	FEHD-G2-IV	Electrohydraulic Disc Brake FEHD-G2-IV
Electrohydraulic thruster	AEH	With thruster
	000	Without thruster
Thruster force (nominal force)	23	23 kgf
	30	30 kgf
	50	50 kgf
	80	80 kgf
	125	125 kgf
	200	200 kgf
	300	300 kgf
Thruster stroke	05	50 mm
	06	60 mm
	12	120 mm
Thruster options	0	Without regulating valve
	VF	With lowering regulating valve
	S1	Heavy Duty Kit for 100 % time open condition and Viton sealing
Thruster voltage (3 phases)	V1	440 Vac - 60 Hz
	V2	380 Vac - 60 Hz
	V3	220 Vac - 60 Hz
	V5	440 Vac - 50 Hz
	V6	380 Vac - 50 Hz
	V7	220 Vac - 50 Hz
	V4	Special
Automatic pad wear compensation system	RA	Automatic pad wear compensation system
Disc thickness	30	30 mm
	20	20 mm
Thruster assembly	D	Right hand
	E	Left hand
Open – Close status sensor	SP	Standard (inductive)
	SE	Special

CODE DESCRIPTION

Category	Code	Description
Control and detection of pad wear	CP	Standard (CDPG)
	CE	Special
	00	Without
Unblock system	DA	Manual unblock lever
	00	Without manual unblock lever
Painting	PP	Standard
	PE	Special (according to customer specification)
Pad options	PO	Organic, asbestos-free
	PS1	Organic, asbestos-free, with flexible cables for worn-out monitor
	PS2	Sintered brake pads
	PS4	Special
	PS5	Non-metallic particles

ELECTROHYDRAULIC DISC BRAKE FEHD-G2-I



FEHD-G2-I LIST OF TECHNICAL DATA

Disc	Dimensions				Thruster x Torque				Thruster x Braking Force			
Ød	**Ød1**	**Ød2**	**e**	**k1**	**AEH 23/5**		**AEH 30/5**		**AEH 23/5**		**AEH 30/5**	
[mm]	[mm]	[mm]	[mm]	[mm]	[Nm] Min.	[Nm] Max.	[Nm] Min.	[Nm] Max.	[N] Min.	[N] Max.	[N] Min.	[N] Max.
250	180	90	98	61	100	240	135	330	1.110	2.665	1.525	3.665
280	210	120	113	76	115	280	160	385	1.110	2.665	1.525	3.665
315	245	155	131	94	135	325	185	445	1.110	2.665	1.525	3.665
355	285	195	151	114	155	380	215	520	1.110	2.665	1.525	3.665
400	330	240	173	136	180	440	250	605	1.110	2.665	1.525	3.665
450	380	290	198	161	210	505	290	695	1.110	2.665	1.525	3.665
500	430	340	223	186	235	570	325	785	1.110	2.665	1.525	3.665

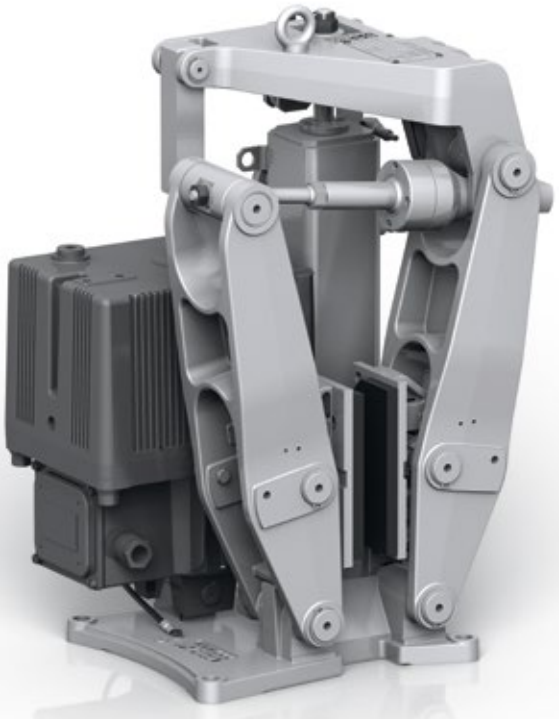
FEATURES

	FEHD-G2-I 23/5	FEHD-G2-I 30/5
Total brake weight (with thruster)	53,5 kg	54 kg
Total brake weight (without thruster)	40,5 kg	40,5 kg
Disc thickness [E]	20 mm	20 mm
Pad width	70 mm	70 mm
Area per pad	8.090 mm²	8.090 mm²
Permissible pad wear (organic pad)	8 mm	8 mm
Pad weight	0,75 kg	0,75 kg
Brake response time	≤ 0,4 s	≤ 0,4 s
Pads wear recovery	Automatic	Automatic
Ambient temperature range	-25°C to +50°C	-25°C to +50°C
Applying	Spring	Spring
Releasing	Electrohydraulic	Electrohydraulic

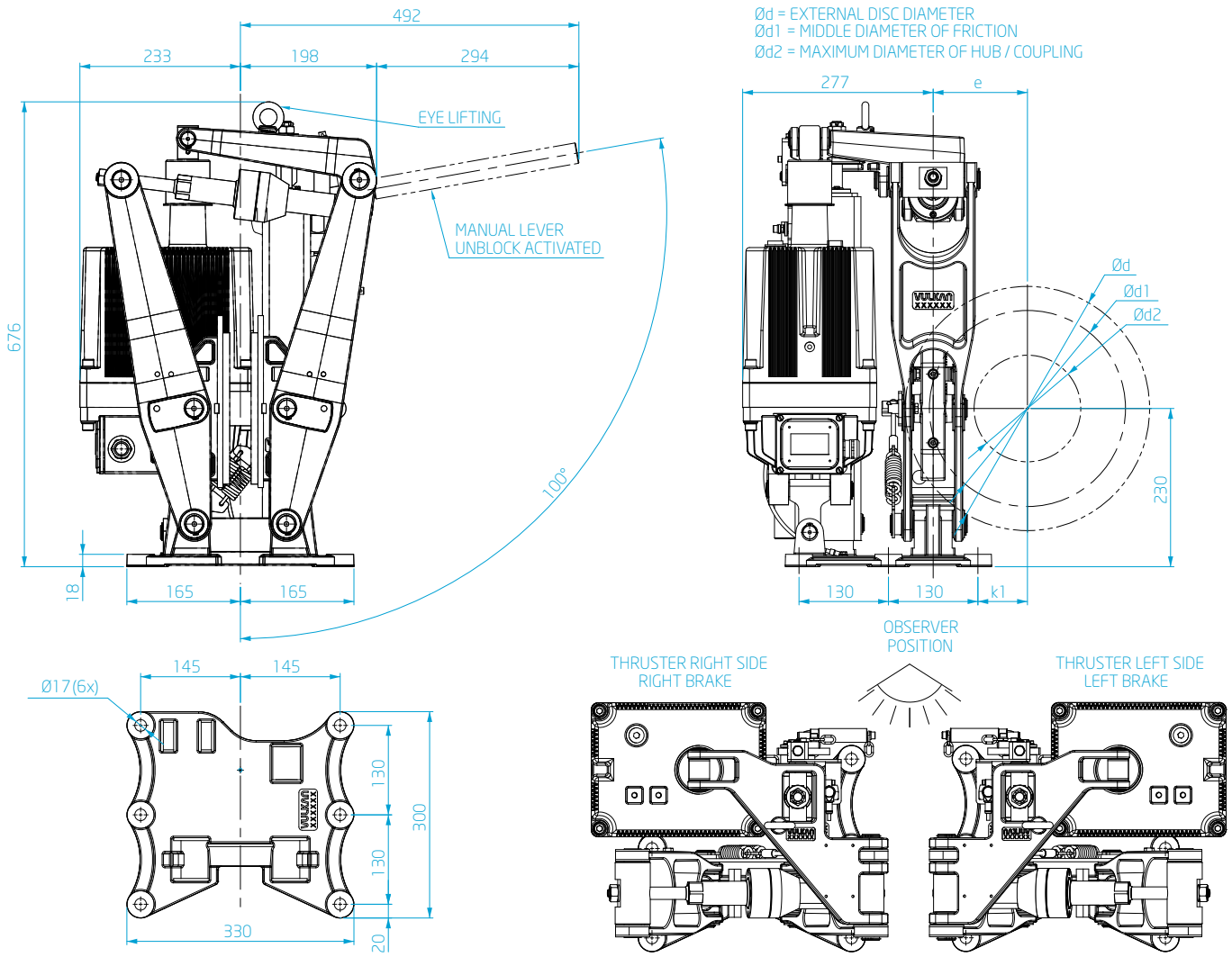
TORQUE / BRAKING CALCULATION

BT	Braking torque (Nm)
BF	Braking force (N)
Ød	External disc diameter (mm)

BT = 0,0005 x BF x (Ød-70)



ELECTROHYDRAULIC DISC BRAKE FEHD-G2-II

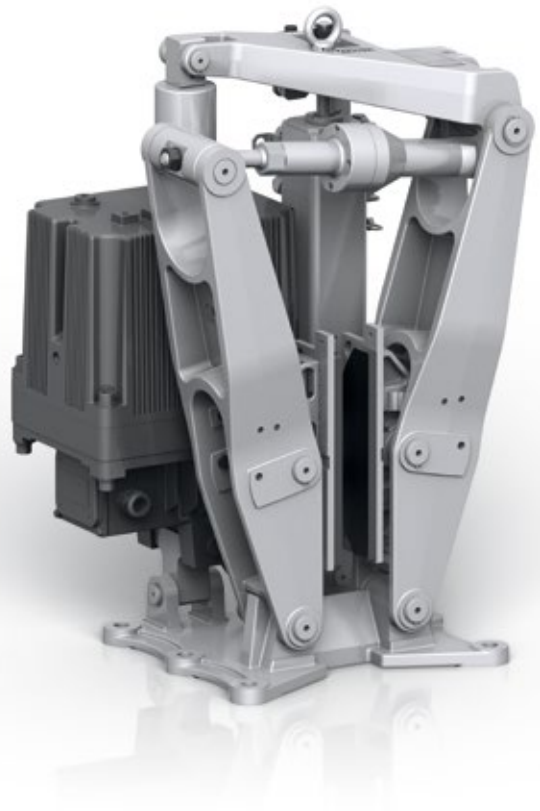


FEHD-G2-II LIST OF TECHNICAL DATA

Disc	Dimensions				Thruster x Torque						Thruster x Braking Force					
Ød	**Ød1**	**Ød2**	**e**	**k1**	**AEH 30/5**		**AEH 50/6**		**AEH 80/6**		**AEH 30/5**		**AEH 50/6**		**AEH 80/6**	
[mm]	[mm]	[mm]	[mm]	[mm]	[Nm] Min.	[Nm] Max.	[Nm] Min.	[Nm] Max.	[Nm] Min.	[Nm] Max.	[N] Min.	[N] Max.	[N] Min.	[N] Max.	[N] Min.	[N] Max.
355	285	155	137	72	280	670	390	935	–	–	1.960	4.710	2.740	6.580	4.815	11.555
400	330	200	160	95	320	775	450	1.085	795	1.905	1.960	4.710	2.740	6.580	4.815	11.555
450	380	250	185	120	370	895	520	1.250	915	2.195	1.960	4.710	2.740	6.580	4.815	11.555
500	430	300	210	145	420	1.010	590	1.415	1.035	2.485	1.960	4.710	2.740	6.580	4.815	11.555
560	490	300	240	175	480	1.155	670	1.610	1.180	2.830	1.960	4.710	2.740	6.580	4.815	11.555
630	560	360	275	210	550	1.320	765	1.840	1.345	3.235	1.960	4.710	2.740	6.580	4.815	11.555

FEATURES

	FEHD-G2-II 30/5	FEHD-G2-II 50/6	FEHD-G2-II 80/6
Total brake weight (with thruster)	79,4 kg	91,9 kg	91,9 kg
Total brake weight (without thruster)	65,9 kg	65,9 kg	65,9 kg
Disc thickness [E]	30 mm	30 mm	30 mm
Pad width	70 mm	70 mm	70 mm
Area per pad	12.536 mm²	12.536 mm²	12.536 mm²
Permissible pad wear (organic pad)	8 mm	8 mm	8 mm
Pad weight	1,2 kg	1,2 kg	1,2 kg
Brake response time	≤ 0,4 s	≤ 0,4 s	≤ 0,4 s
Pads wear recovery	Automatic	Automatic	Automatic
Ambient temperature range	-25°C to +50°C	-25°C to +50°C	-25°C to +50°C
Applying	Spring	Spring	Spring
Releasing	Electrohydraulic	Electrohydraulic	Electrohydraulic

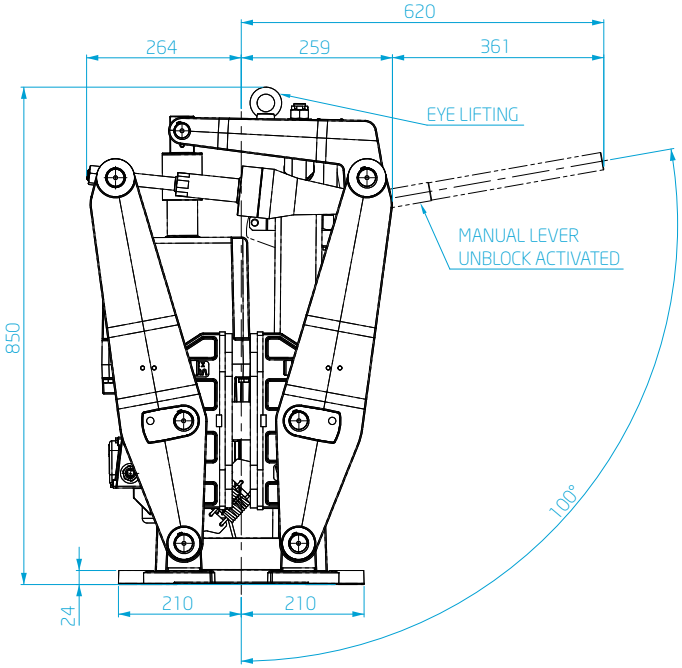


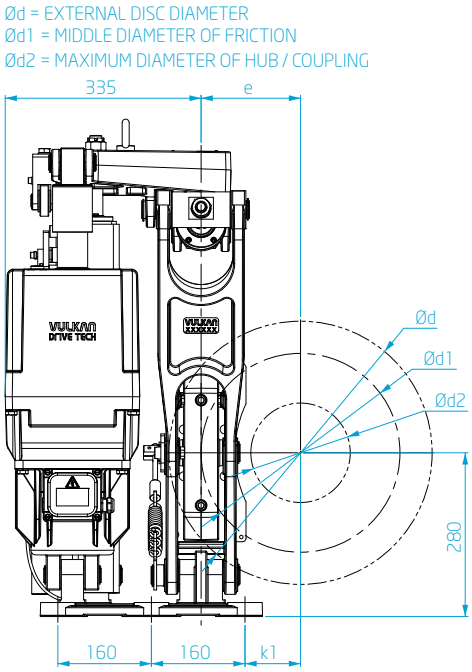
TORQUE / BRAKING CALCULATION

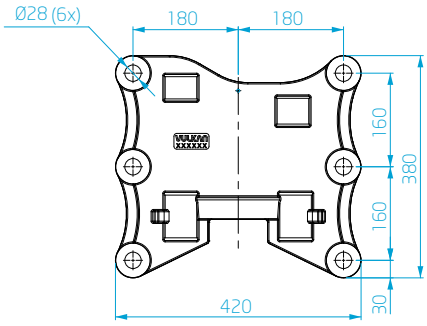
BT	Braking torque (Nm)
BF	Braking force (N)
Ød	External disc diameter (mm)

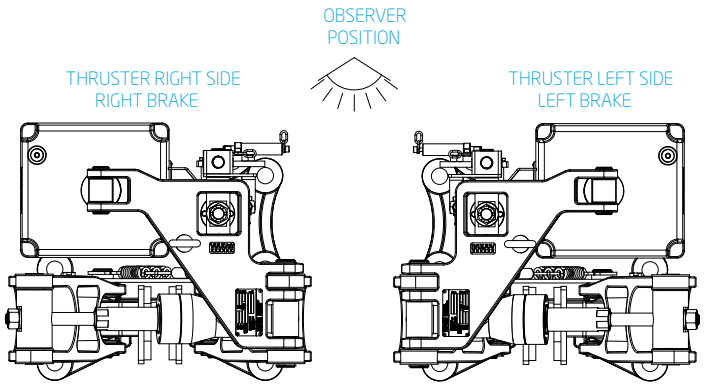
BT = 0,0005 x BF x (Ød-70)

ELECTROHYDRAULIC DISC BRAKE FEHD-G2-III







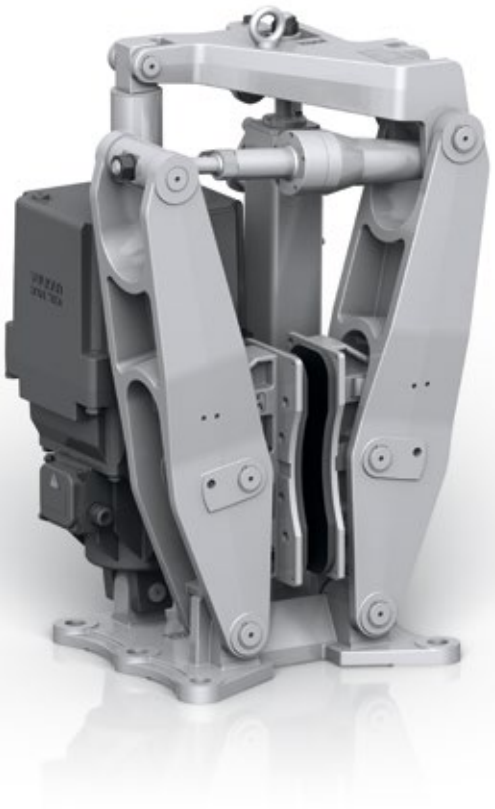


FEHD-G2-III LIST OF TECHNICAL DATA

Disc	Dimensions				Thruster x Torque						Thruster x Braking Force					
Ød	**Ød1**	**Ød2**	**e**	**k1**	**AEH 125/6**		**AEH 200/6**		**AEH 300/6**		**AEH 125/5**		**AEH 200/6**		**AEH 300/6**	
[mm]	[mm]	[mm]	[mm]	[mm]	[Nm] Min.	[Nm] Max.	[Nm] Min.	[Nm] Max.	[Nm] Min.	[Nm] Max.	[N] Min.	[N] Max.	[N] Min.	[N] Max.	[N] Min.	[N] Max.
450	340	155	170	95	1.400	3.360	–	–	–	–	8.230	19.755	13.325	31.985	19.990	47.980
500	390	200	195	120	1.605	3.850	–	-	–	–	8.230	19.755	13.325	31.985	19.990	47.980
560	450	250	225	150	1.850	4.445	3.600	7.200	–	–	8.230	19.755	13.325	31.985	19.990	47.980
630	520	300	260	185	2.140	5.135	3.465	8.320	5.200	12.480	8.230	19.755	13.325	31.985	19.990	47.980
710	600	300	300	225	2.470	5.925	4.000	9.600	6.000	14.400	8.230	19.755	13.325	31.985	19.990	47.980
800	690	360	345	270	2.840	6.815	4.600	11.040	6.900	16.560	8.230	19.755	13.325	31.985	19.990	47.980
900	790	410	395	320	–	–	–	–	7.900	18.960	8.230	19.755	13.325	31.985	19.990	47.980
1000	890	410	445	370	–	–	–	–	8.900	21.360	8.230	19.755	13.325	31.985	19.990	47.980

FEATURES

	FEHD-G2-III 125/6	FEHD-G2-III 200/6	FEHD-G2-III 300/6
Total brake weight (with thruster)	199,4 kg	199,4 kg	199,4 kg
Total brake weight (without thruster)	154,4 kg	154,4 kg	154,4 kg
Disc thickness [E]	30 mm	30 mm	30 mm
Pad width	110 mm	110 mm	110 mm
Area per pad	31.452 mm²	31.452 mm²	31.452 mm²
Permissible pad wear (organic pad)	10 mm	10 mm	10 mm
Pad weight	3,45 kg	3,45 kg	3,45 kg
Brake response time	≤ 0,4 s	≤ 0,4 s	≤ 0,4 s
Pads wear recovery	Automatic	Automatic	Automatic
Ambient temperature range	-25°C to +50°C	-25°C to +50°C	-25°C to +50°C
Applying	Spring	Spring	Spring
Releasing	Electrohydraulic	Electrohydraulic	Electrohydraulic

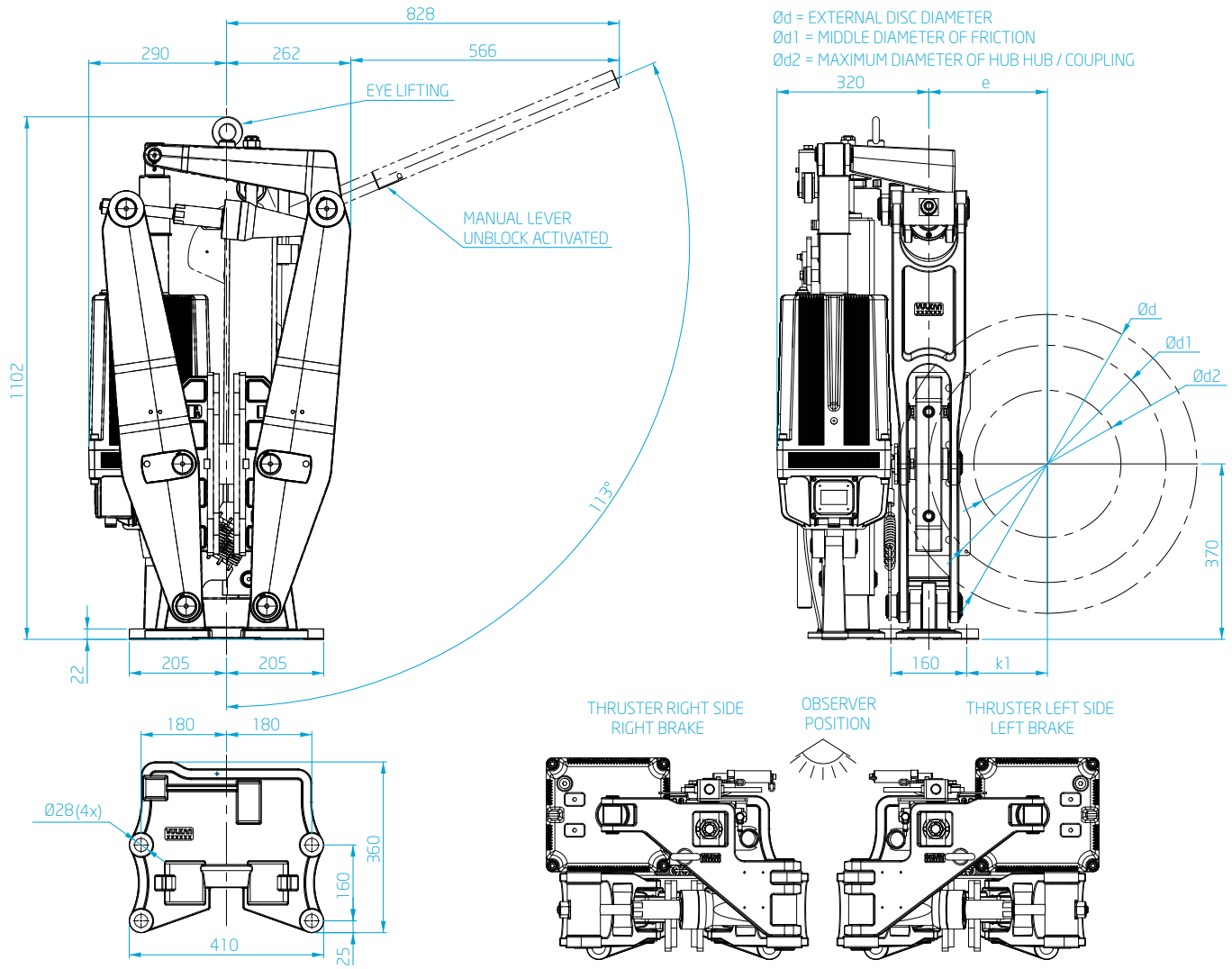


TORQUE / BRAKING CALCULATION

BT	Braking torque (Nm)
BF	Braking force (N)
Ød	External disc diameter (mm)

BT = 0,0005 x BF x (Ød-110)

ELECTROHYDRAULIC DISC BRAKE FEHD-G2-IV



FEHD-G2-IV LIST OF TECHNICAL DATA

Disc	Dimensions				Thruster x Torque		Thruster x Braking Force	
Ød	**Ød1**	**Ød2**	**e**	**k1**	**AEH 300/12**		**AEH 300/12**	
[mm]	[mm]	[mm]	[mm]	[mm]	[Nm] Min.	[Nm] Max.	[N] Min.	[N] Max.
630	500	310	250	170	6.750	13.500	26.460	52.920
710	580	390	290	210	7.805	15.615	26.460	52.920
800	670	480	335	255	9.000	18.000	26.460	52.920
900	770	580	385	305	10.320	20.645	26.460	52.920
1.000	870	680	435	355	11.645	23.290	26.460	52.920
1.250	1.120	930	560	480	14.955	29.910	26.460	52.920

FEATURES

	FEHD-G2-IV 300/12
Total brake weight (with thruster)	263,6 kg
Total brake weight (without thruster)	217,6 kg
Disc thickness [E]	30 mm
Pad width	120 mm
Area per pad	43.335 mm²
Permissible pad wear (organic pad)	10 mm
Pad weight	6,0 kg
Brake response time	≤ 0,4 s
Pads wear recovery	Automatic
Ambient temperature range	-25°C to +50°C
Applying	Spring
Releasing	Electrohydraulic

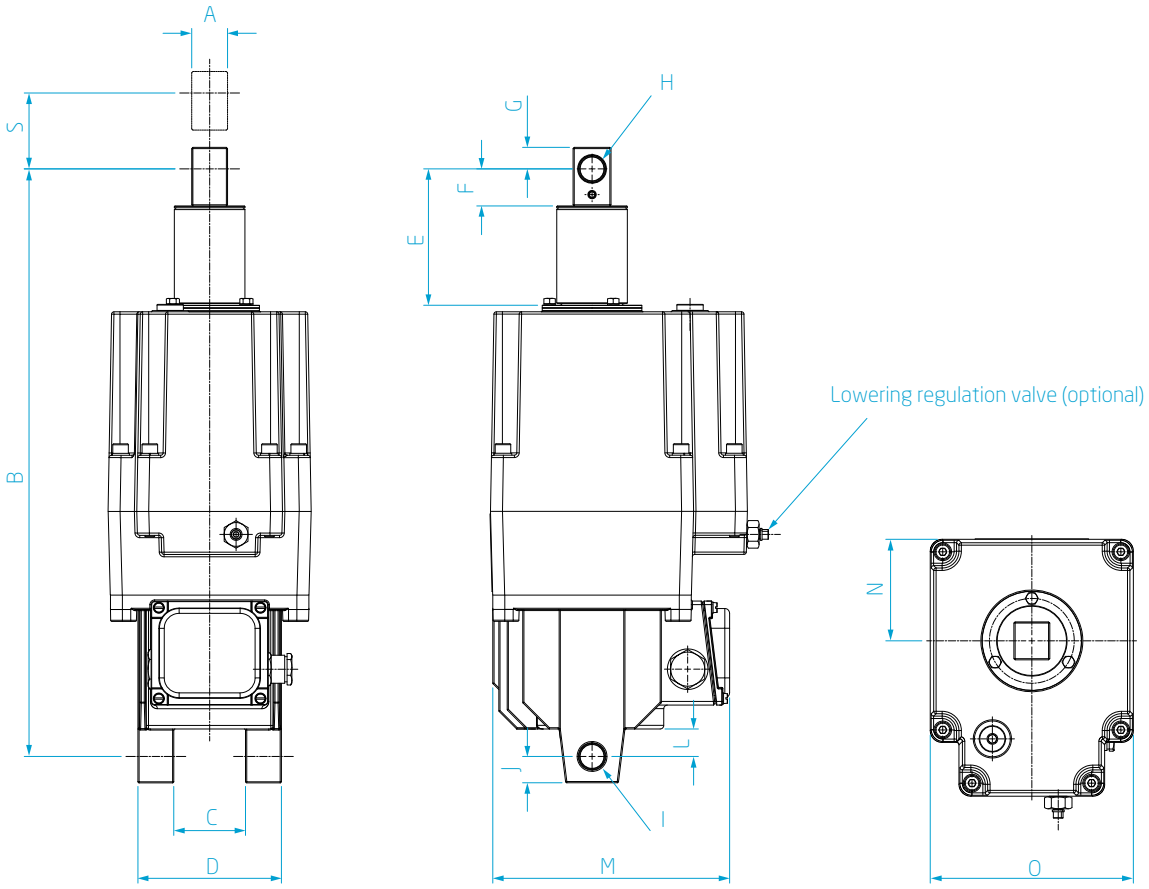
TORQUE / BRAKING CALCULATION

BT	Braking torque (Nm)
BF	Braking force (N)
Ød	External disc diameter (mm)

BT = 0,0005 x BF x (Ød-120)

ELECTROHYDRAULIC THRUSTER

DIN 15430



DIN 15430 LIST OF TECHNICAL DATA

Model	Force	Stroke	Power	Current	Weight with Oil	Oil Volume
				440V Vac 60 Hz		
	[N]	[mm]	[W]	[A]	[kg]	[l]
AEH-23-5	230	50	220	0,53	13	2
AEH-30-5	300	50	240	0,61	13,5	2
AEH-50-6	500	60	340	0,85	26	5
AEH-80-6	800	60	430	0,97	26	5
AEH-125-6	1.250	60	800	1,12	45	10
AEH-200-6	2.000	60	450	1,33	45	10
AEH-300-6	3.000	60	800	1,64	45	10
AEH-300-12	3.000	120	800	1,64	46	10

FEATURES

Force	23 – 300 kgf
Stroke	50 – 60 – 120 mm
Lowering Time	0,3 – 0,5 s
Thruster Voltage	220 / 380 / 440 Vac 50 / 60 Hz

OPTIONAL FEATURES

Thruster lowering regulating valve
Heavy Duty Kit for 100 % time open condition and Viton sealing
Special painting

Dimensions

	A	B	C	D	E	F	G	ØH	ØI	J	L	M	N	O
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
	20	286	40	80	34	26	12	16	12	16	20	200	70	163
	25	370	40	80	77	34	15	16	16	16	18	197	85	163
	30	435	60	120	157	36	18	20	20	22	23	254	85	170
	30	450	60	120	157	36	18	20	20	22	23	254	85	170
	40	645	40	90	121	38	25	25	25	25	35	260	112	230
	40	645	40	90	121	38	25	25	25	25	35	260	112	230
	40	645	40	90	121	38	25	25	25	25	35	260	112	230
	40	705	40	90	121	38	25	25	25	25	35	260	112	230

NOTES

VALIDITY CLAUSE

The present catalogue shall replace all previous editions, any previous printings shall no longer be valid. Based on new developments, VULKAN Kupplungs- und Getriebebau Bernhard Hackforth GmbH & Co. KG (hereinafter called “VULKAN”) reserves the right to amend and change any details contained in this catalogue respectively. The new data shall only apply with respect to couplings that were ordered after said amendment or change. It shall be the responsibility of the user to ensure that only the latest catalogue issue will be used. The respective latest issue can be seen on the website of VULKAN on www.vulkan.com.

The data contained in this catalogue refer to the technical standard as presently used by VULKAN with defined conditions according to the explanations. It shall be the sole responsibility and decision of the system administrator for the drive line to draw conclusions about the system behaviour.

VULKAN torsional vibration analysis usually only consider the pure mechanical mass-elastic system. Being a component manufacturer exclusively, VULKAN assumes no system responsibility with the analysis of the torsional vibration system (stationary, transiently)! The accuracy of the analysis depends on the exactness of the used data and the data VULKAN is provided with, respectively.

Any changes due to the technological progress are reserved. For questions or queries please contact VULKAN.

www.vulkan.com

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STATUS 08/2020