Made for Motion KTR

Brake systems

KTR-STOP®

EMB-STOP

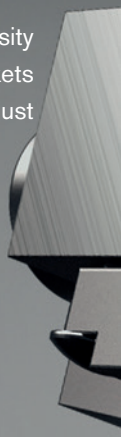
www.ktr.com

FUTURE WITH A SYSTEM.

KTR have consistently continued to extend their expertise in building systems over the past few decades. Today we are a leading manufacturer providing solutions with highest quality standards in the fields of drive technology, brake and cooling systems as well as hydraulic components to our global business partners.

So what would be more obvious than adapting our company name to this development? KTR Kupplungstechnik GmbH has become KTR Systems GmbH.

The change of name takes account of the growing diversity of our performance range demonstrating the global markets and our customers that we are prepared to take over just more responsibility in machines and plants.

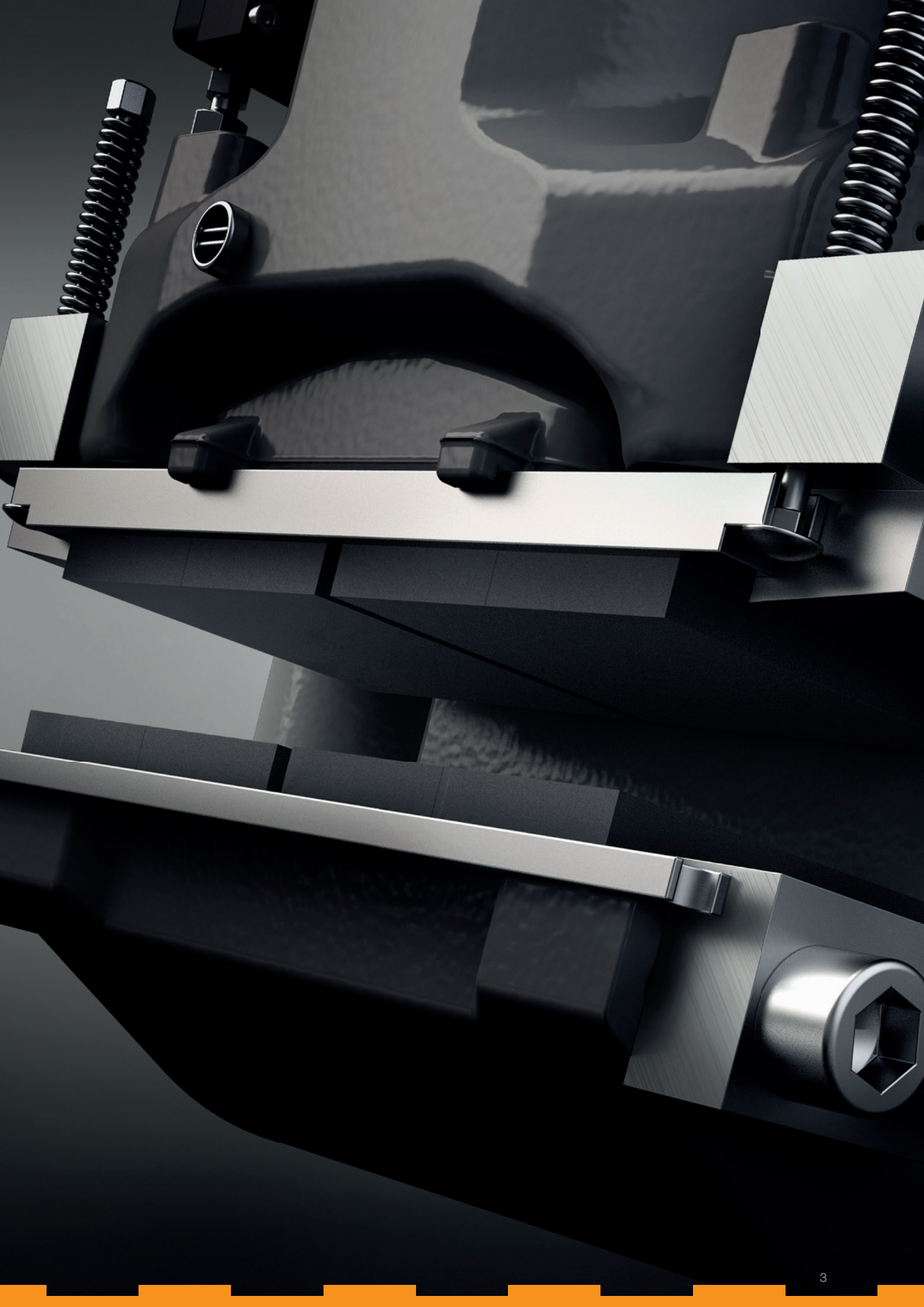


WHOEVER TALKS ABOUT DRIVING MUST BE ABLE TO SLOW DOWN..

Does it confuse you if a company having the slogan „Made for Motion“ provides brake systems as well? This is not the case with KTR. Being the leading supplier in the range of drive and fluid technology for industrial applications we make use of our technical know-how to develop suitable brake systems. The result is that KTR revolutionized hydraulic brakes triplicating the performance range of electromechanical brakes. Consequently KTR is one of the few manufacturers worldwide providing their customers with two different brake systems: the hydraulic KTR-STOP® and the electromechanical EMB-STOP.

„Innovation & tradition are the key components of our product portfolio and KTR's corporate culture“

Nicola Warning, CEO of KTR



The Competence Center for Brake Systems: That is where KTR brakes learn to grip better.

Opposites attract: the brake portfolio of the drive specialist

Driving and braking technology: What most companies consider as opposites, KTR estimates as an ideal supplement. Many years ago KTR started to project and distribute brakes. But you trust most in those things you developed yourselves. That is why KTR was not satisfied with distribution only, but made use of its decades of engineering experience to considerably improve the hydraulic brake system in many respects. By taking over EM Brake Systems in 2013, electromechanical brake systems have meanwhile completed KTR's portfolio. As a result KTR is in a position to provide the ideal brake system for every demand. Driving and braking technology from one single source - the customers are in good hands with KTR.

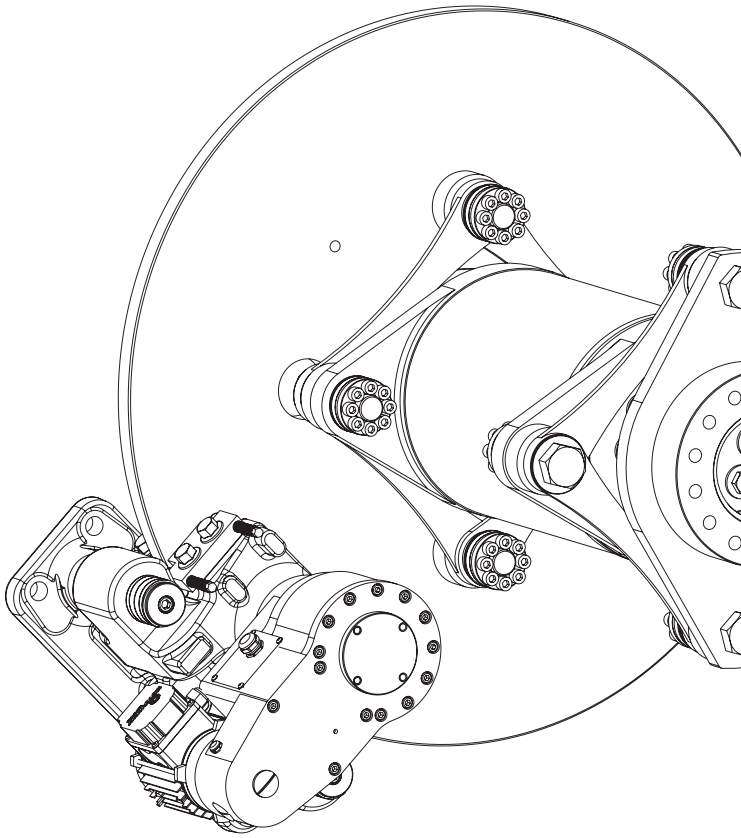
„What can actually not be slowed down? Our innovative capacity."

Dr. Norbert Partmann, KTR Brake Systems

An innovative ambience for innovative ideas

KTR-STOP® and EMB-STOP - these two brake systems have been consolidated since 2014. We are specifically proud of the location: the „Competence Center for Brake Systems“. It is situated in Schloß Holte-Stukenbrock in east Westphalia and the head office of the new KTR Brake Systems GmbH.

By the way: The Competence Center well deserves its name. Since KTR develops all measures dealing with brake systems in these state-of-the-art premises. The brake components of both series are developed, designed and tested here. A special cryogenic cooling chamber allows for tests even with temperatures down to -50 °C making the brakes ready for wind and weather in this way.



IntelliRamp®: powerful braking, intelligent controlling

Everything is at your command. To make sure this is the case with braking as well, KTR provides its hydraulic and electronic brakes with IntelliRamp®, if requested. This electronic control system combines power with finesse allowing for controlled and coordinated braking processes. The core component is the control computer taking over all operations of calculation and monitoring that are necessary for controlling the brake systems. No matter if constant deceleration, constant time function or constant speed control is concerned: You make your choice as per your demands - the rest is carried out by IntelliRamp®. To make sure you still have the control of the braking process with critical conditions of the machine, too, the system, among others, has an uninterruptible power supply to allow for performing a full braking cycle in case of power failure. This makes the machine stop without having a longer period of standstill.

They keep whatever KTR promises: KTR-STOP® and EMB-STOP

Those who have a special problem do not need a general solution. One for all applications: This may sound good, but cannot always be applied. That is why KTR provides its customers solutions in terms of brakes that are tailor-made for individual demands.

KTR-STOP®: variable braking forces, manifold applications

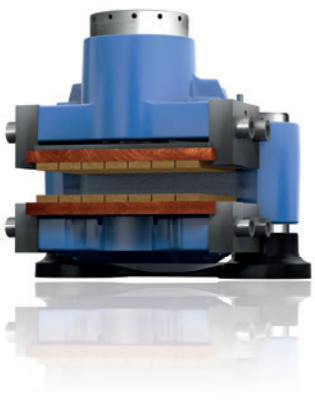
The KTR-STOP® brake system is actually a workaholic. Being a floating caliper brake it is based on the classic disk brake operating reliably, both with storm, iciness and salty sea air. Its resistance to aggressive and rough ambient conditions is not only limited to suitability for offshore applications: Even with the high thermal stress of foundries or the sulphureous air in copper mining KTR-STOP® operates reliably. To make sure it can work very hard under any conditions, it is fully encapsulated, among others, has integrated dirt scrapers and extra wearing rings.
This toughens KTR-STOP®, helps to reduce the operating costs and increase the service life. Thanks to additional guide systems and optimum material utilization - the brake pads can be worn off almost down to the base plate - KTR-STOP® only needs very few and short breaks for maintenance to be ready for operation immediately afterwards. Thus thoroughly a workaholic.

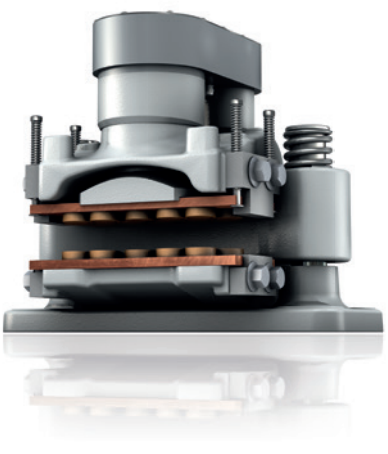
KTR-STOP® NC – definitely a good choice

Playing safe is an obligation in automation technology and in the field of machine tools. New machinery directives meanwhile specify brakes and clamping systems in many applications. KTR reacts promptly to amended demands by developing a plug-in braking and clamping system KTR-STOP® NC which can be retrofitted and which can easily be integrated in existing drives. The additional safety is not only limited to the clamping force and fail-safe operation: As a safety system KTR-STOP® NC compensates for axial load, in this way protecting the drive train from damage. Subject to its multifunctional applicability the passive clamping system is not limited to linear drives, but can be used as a stop system in quite different ranges of machine tools and robotics as well as general engineering. This makes KTR-STOP® NC a good idea for every application.

EMB-STOP: simple, active, unique

EMB-STOP aims high. It feels good at high altitudes and often operates reliably 135 metres above ground - in the huge wind energy plants which it was originally developed for. Different from its hydraulic counterpart EMB-STOP generates its braking force merely electromechanically. By doing without hydraulics maintenance work such as oil change and oil disposal can be done without: This makes EMB-STOP almost maintenance-free.
Meanwhile EMB-STOP has found its way back to earth and water long time ago. EMB-STOP brakes have been used as an efficient and fail-safe system solution in crane construction and mining, materials-handling technology as well as marine and offshore technology. This is not surprising, since they provide for a large contact pressure from 2.5 kN to 1,600 kN. This may increase softly and with control until the maximum braking power has been reached - which is the kind of stop and go treating the material most carefully.





Clamping forces of brake systems

Passive floating caliper brake

Clamping forces [kN]

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900

Hydraulic KTR-STOP®

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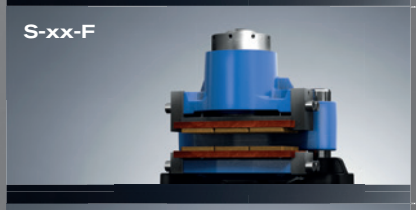

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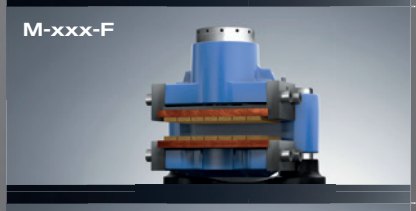

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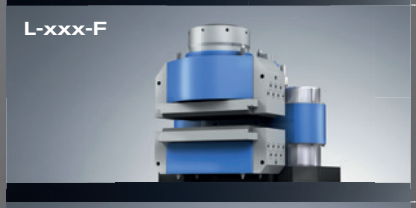

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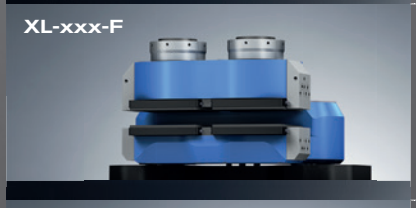

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800 to 1200 [kN]

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Electromechanical EMB-STOP

XS-P-xx-F

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S-P-xx-F

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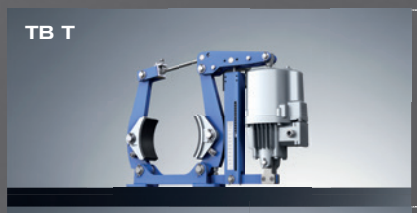
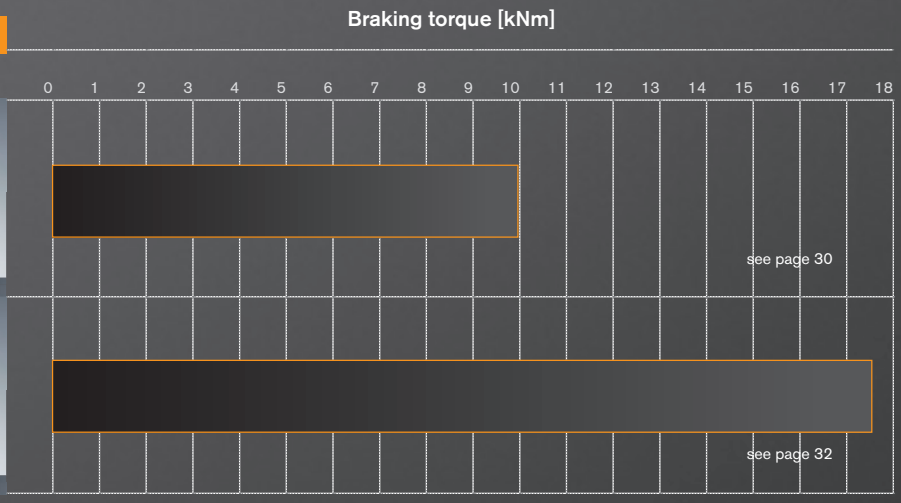
Passive brake systems

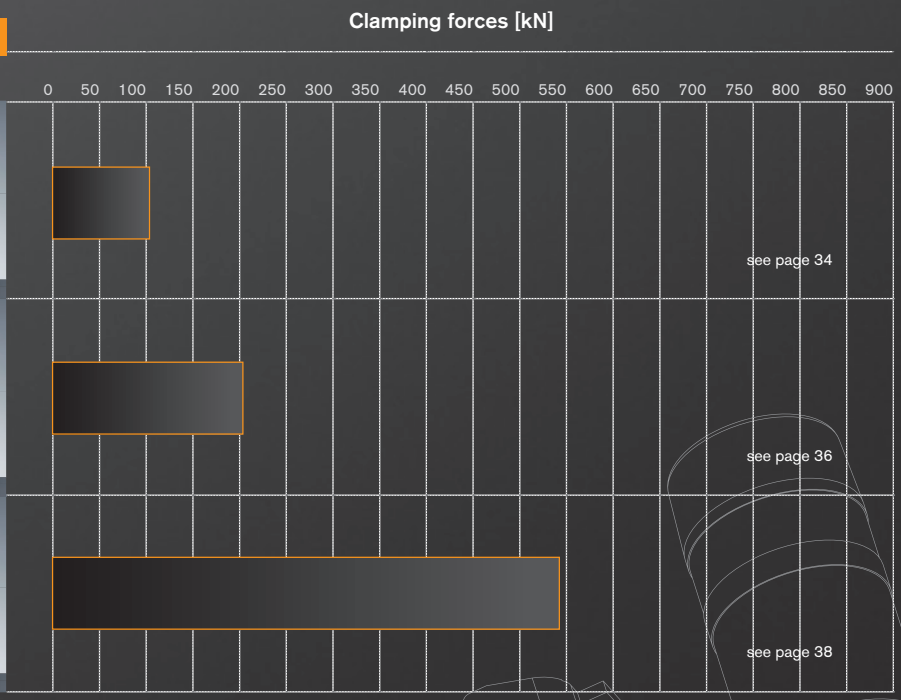
Electrohydraulic KTR-STOP® TB

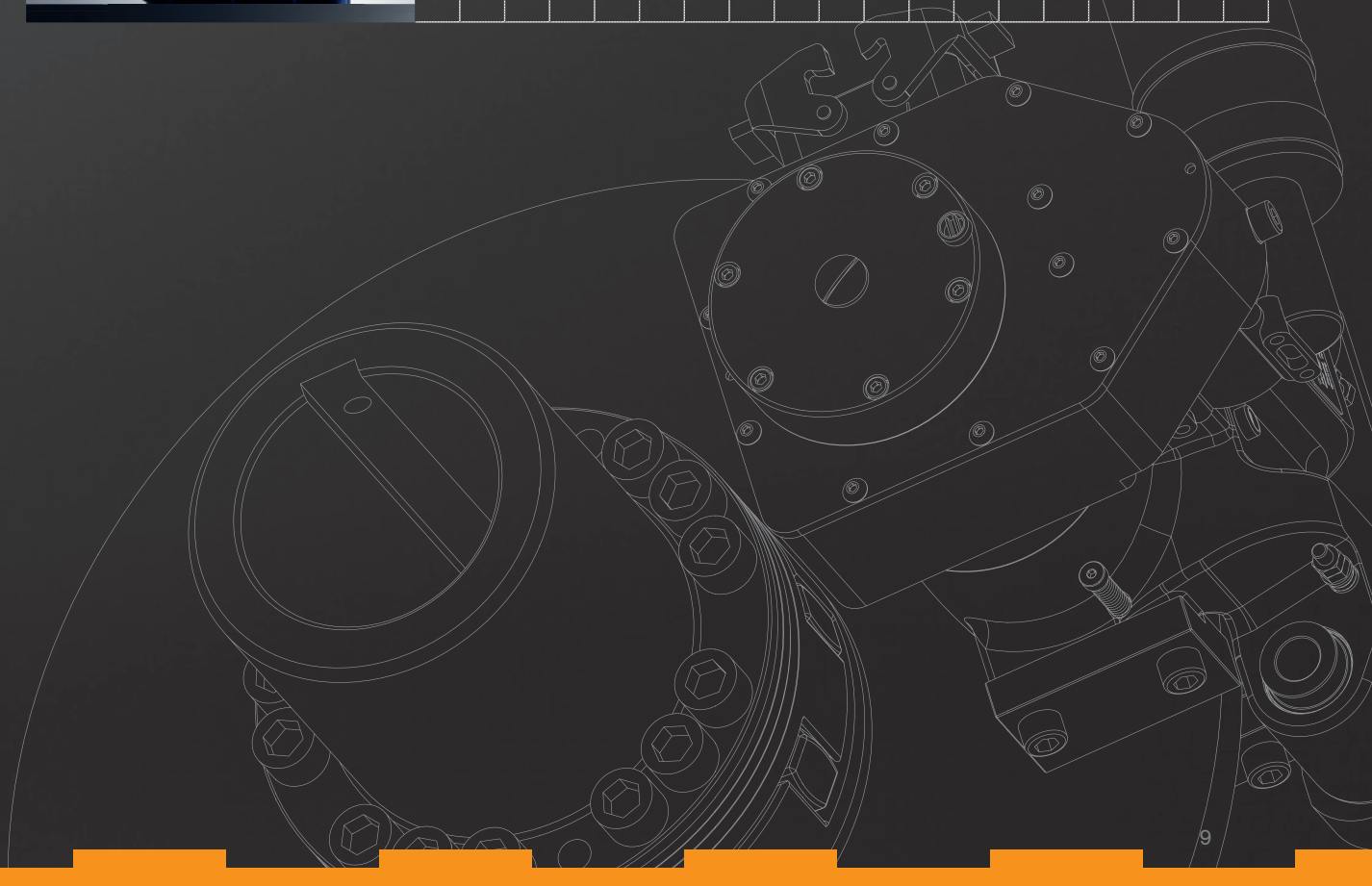




Yaw brakes

Hydraulic KTR-STOP®





Clamping forces of brake systems

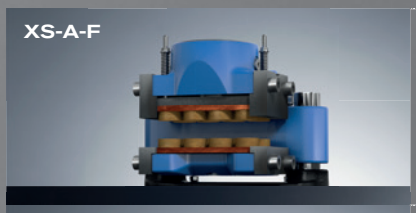
Active floating caliper brake

Clamping forces [kN]

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900

Hydraulic KTR-STOP®

XS-A-F



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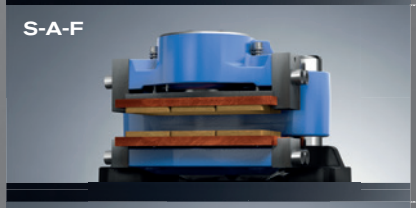
S-A-F



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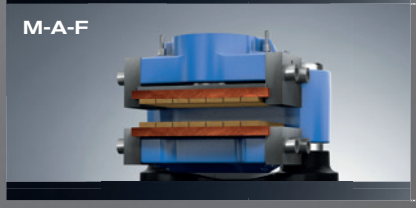
M-A-F



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Electromechanical EMB-STOP

XS-A-xx-F

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S-A-xx-F Lever **S-A-xx-F**

S-A-xx-F Lever

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S-A-xx-F

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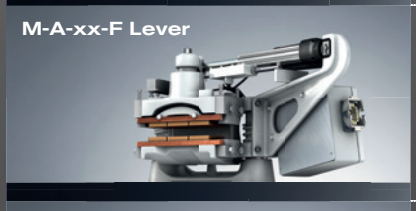
M-A-xx-F Lever



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L-A-xx-F Lever **L-A-xx-F**

L-A-xx-F Lever

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L-A-xx-F

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2L-A-xx-F Lever

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2X L-A-xx-F Lever

800 to 1600 [kN]

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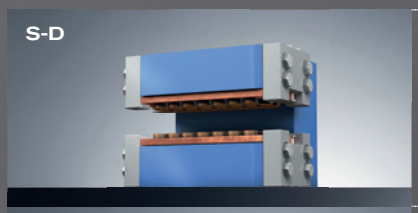
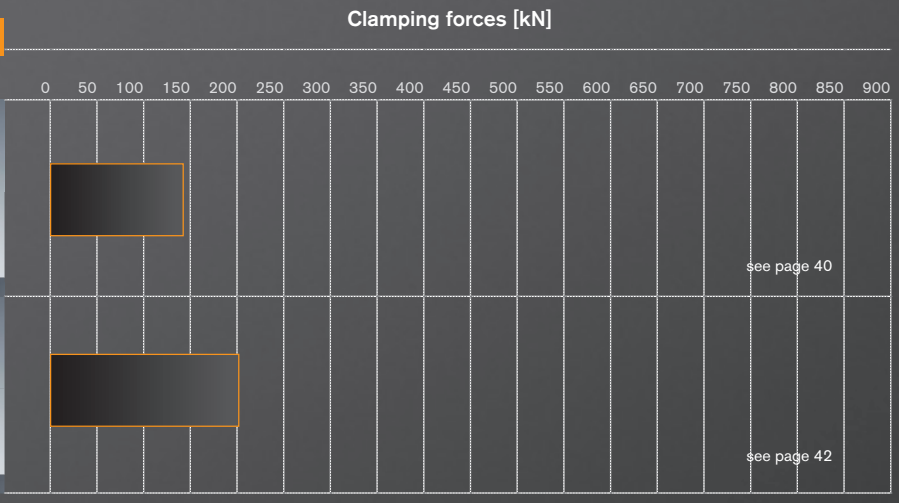
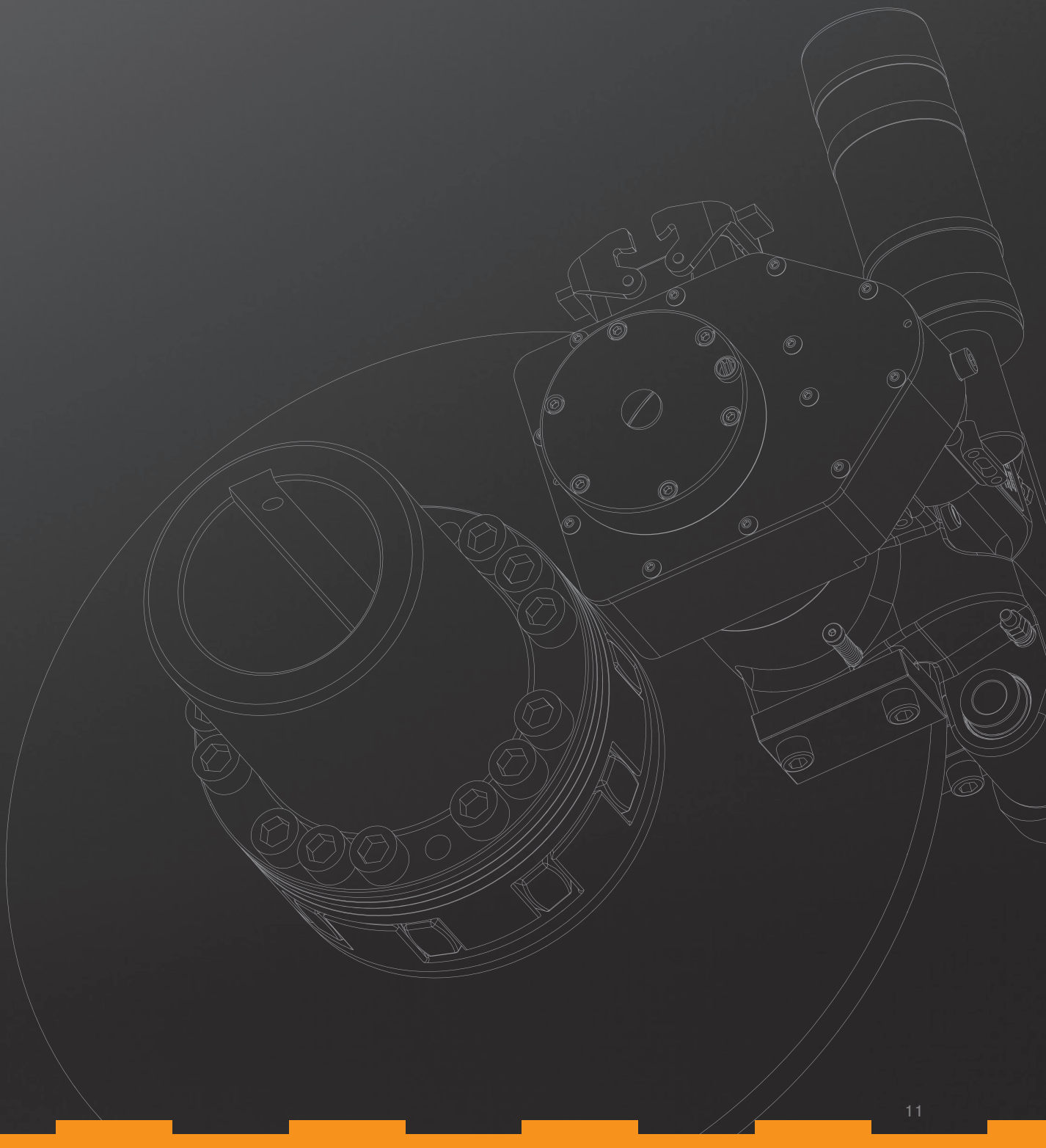
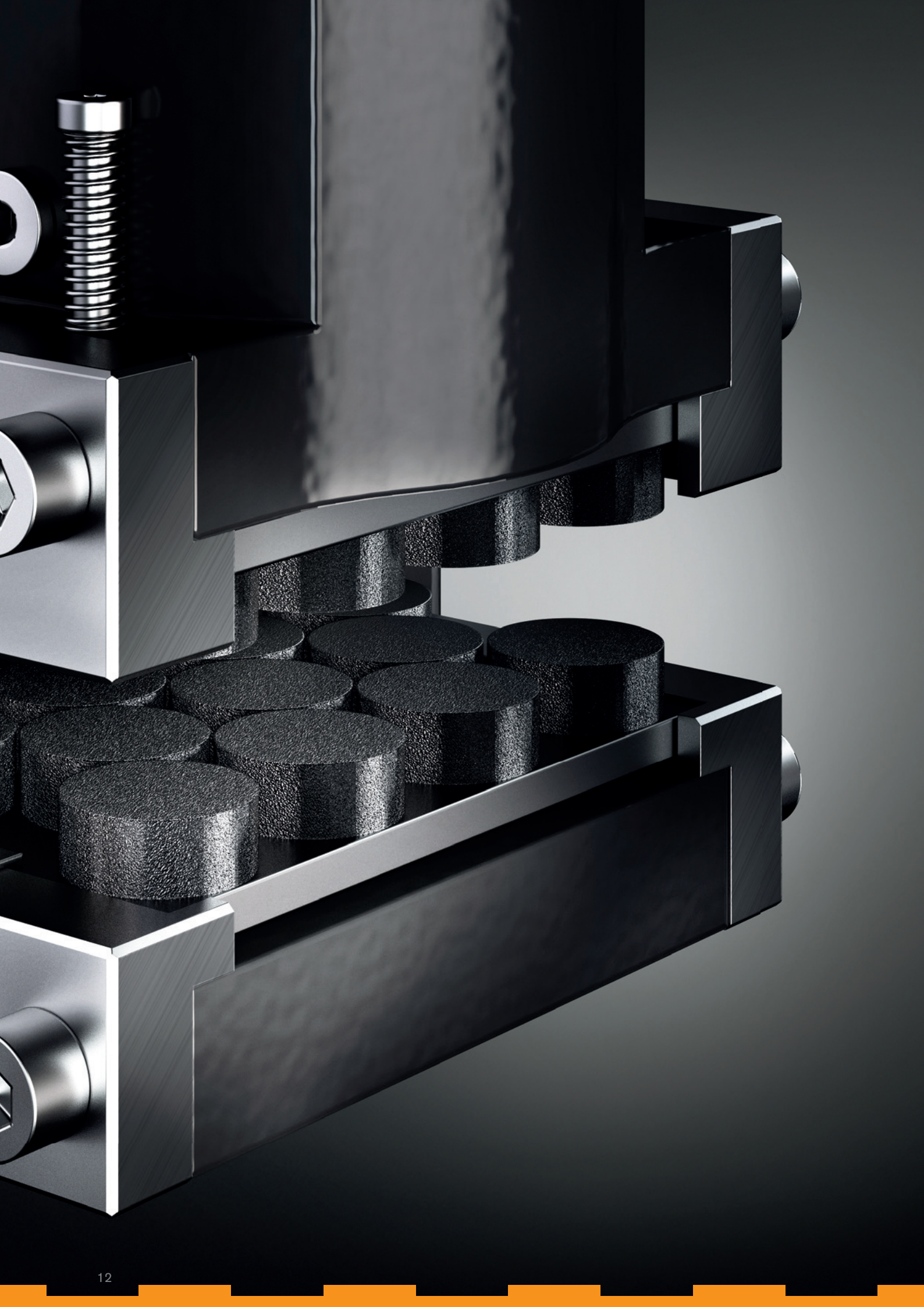
Active fixed caliper brakes

Hydraulic KTR-STOP®









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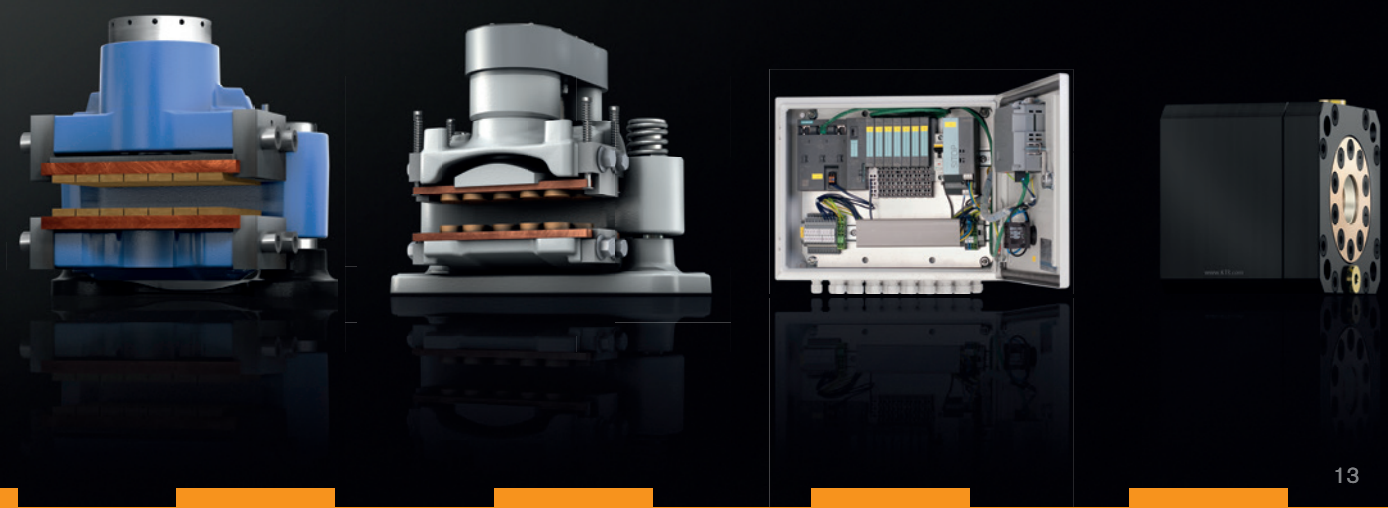
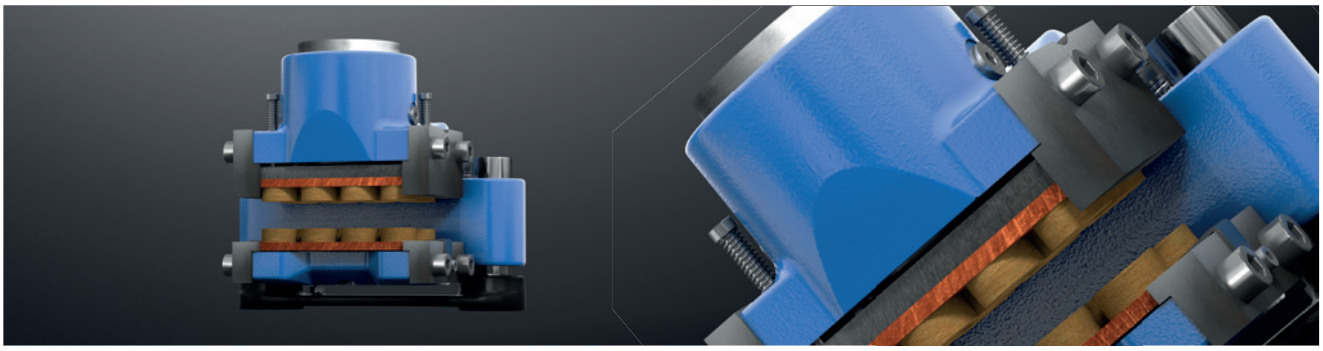
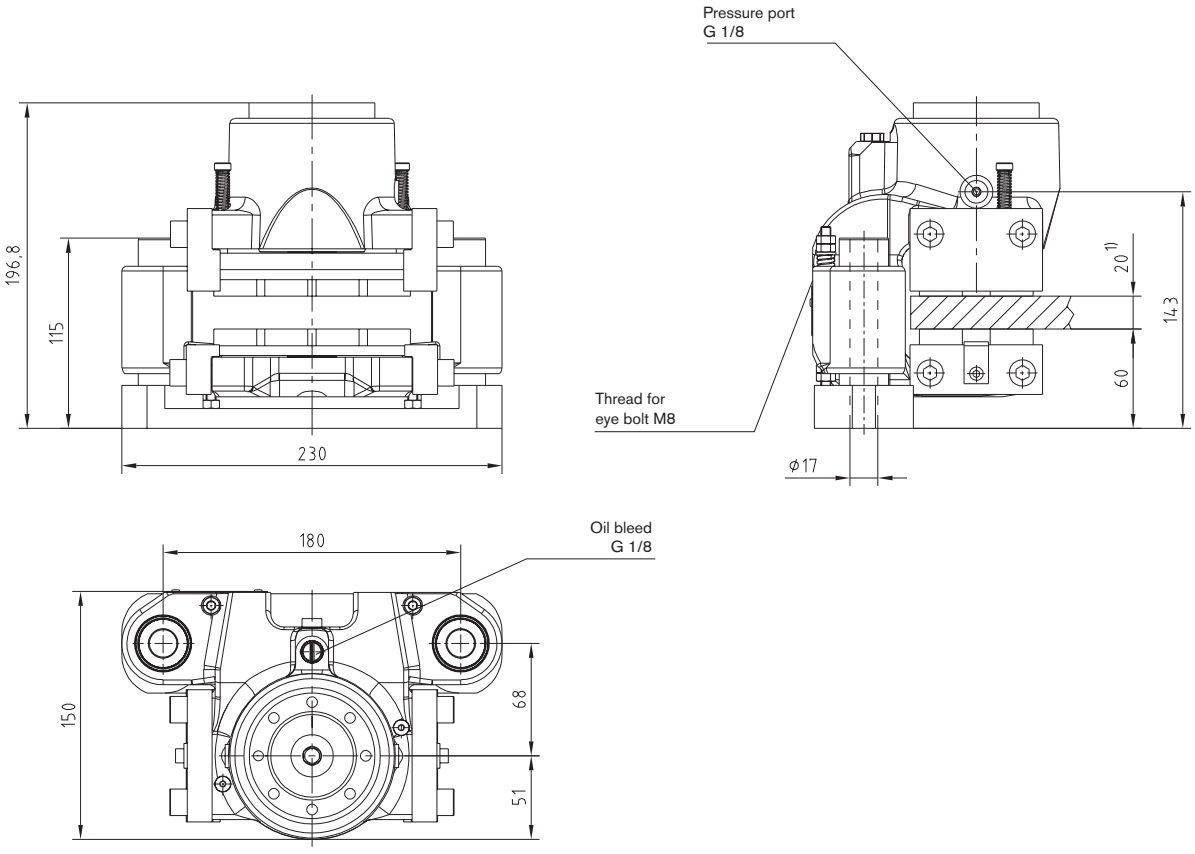


KTR-STOP® XS-xx-F
Passive floating caliper brakes

Hydraulic brake system





KTR-STOP® XS-xx-F				
Total weight [1]		Approx. 18 kg	Max. operating pressure	200 bar
Width of brake pad		70 mm	Thickness of brake disk	20 mm - 30 mm
Surface of each brake pad	organic	8,000 mm²	Pressure port	G 1/8
	powder metal	5,800 mm²	Oil bleed	G 1/8
Max. wear of each brake pad		5 mm	Floating range on axles - towards mounting surface	5 mm
Nominal coefficient of friction [2]		μ = 0.4	Floating range on axles - away from mounting surface	5 mm
Total brake piston surface - complete brake		11 cm²	Min. diameter of brake disk ØD$_A$	300 mm
Volume with 1 mm stroke - complete brake		1.1 cm³	Operating temperature	-20 °C to +50 °C

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	XS	-	6	-	F	B	-	20
KTR brake	Size of brake		Clamping force		Floater	Variant		Thickness of brake disk

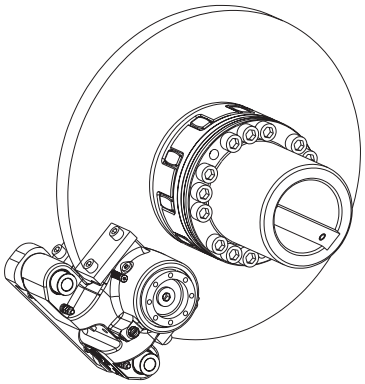
Brake types						
Brake type	Clamping force F_c [kN]	Loss of power [3] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				315	560	800
KTR-STOP® XS-2-F	2	11.0	30	180	370	570
KTR-STOP® XS-3-F	3	5.5	40	270	560	850
KTR-STOP® XS-4-F	4	3.0	50	360	750	1140
KTR-STOP® XS-5-F	5	8.5	70	450	940	1420
KTR-STOP® XS-6-F	6	6.5	80	540	1130	1710
KTR-STOP® XS-7-F	7	4.5	90	640	1320	1990
KTR-STOP® XS-8-F	8	16.5	120	730	1510	2280
KTR-STOP® XS-9-F	9	12.0	130	820	1700	2570
KTR-STOP® XS-10-F	10	10.0	140	910	1890	2850
KTR-STOP® XS-11-F	11	8.5	150	1000	2080	3140
KTR-STOP® XS-12-F	12	11.0	160	1090	2270	3420
KTR-STOP® XS-13-F	13	9.5	170	1190	2460	3710
KTR-STOP® XS-14-F	14	8.5	180	1280	2650	3990
KTR-STOP® XS-15-F	15	8.0	190	1370	2840	4280

[3] With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

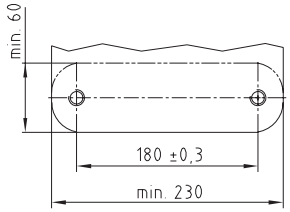
Calculation of brake disk

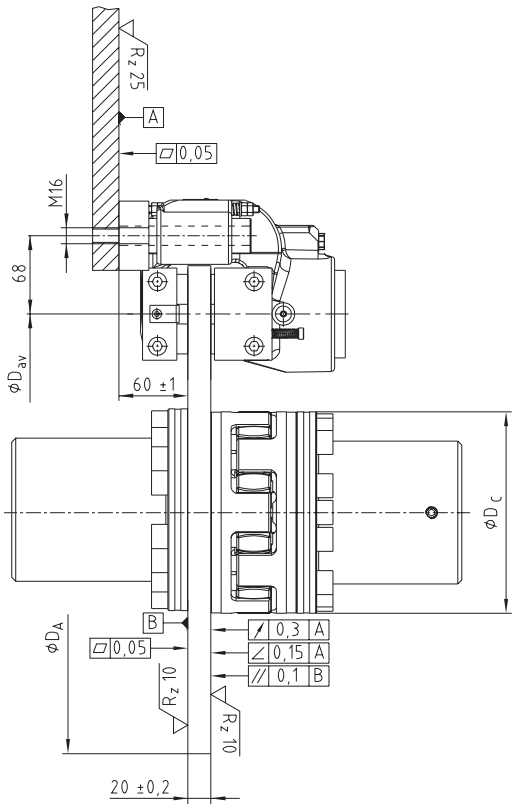
$$D_{Cmax} = D_A - 195$$

$$D_{av} = D_A - 86$$



Connection dimensions of brake





$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

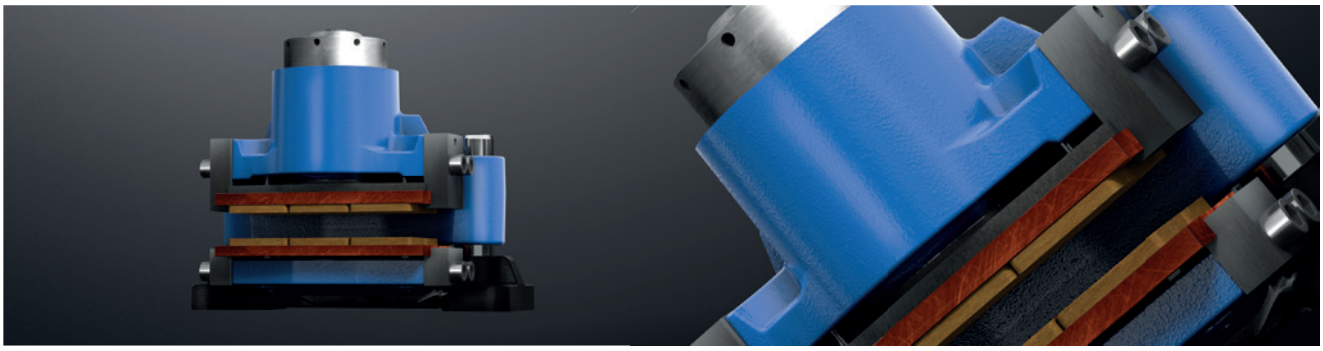
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

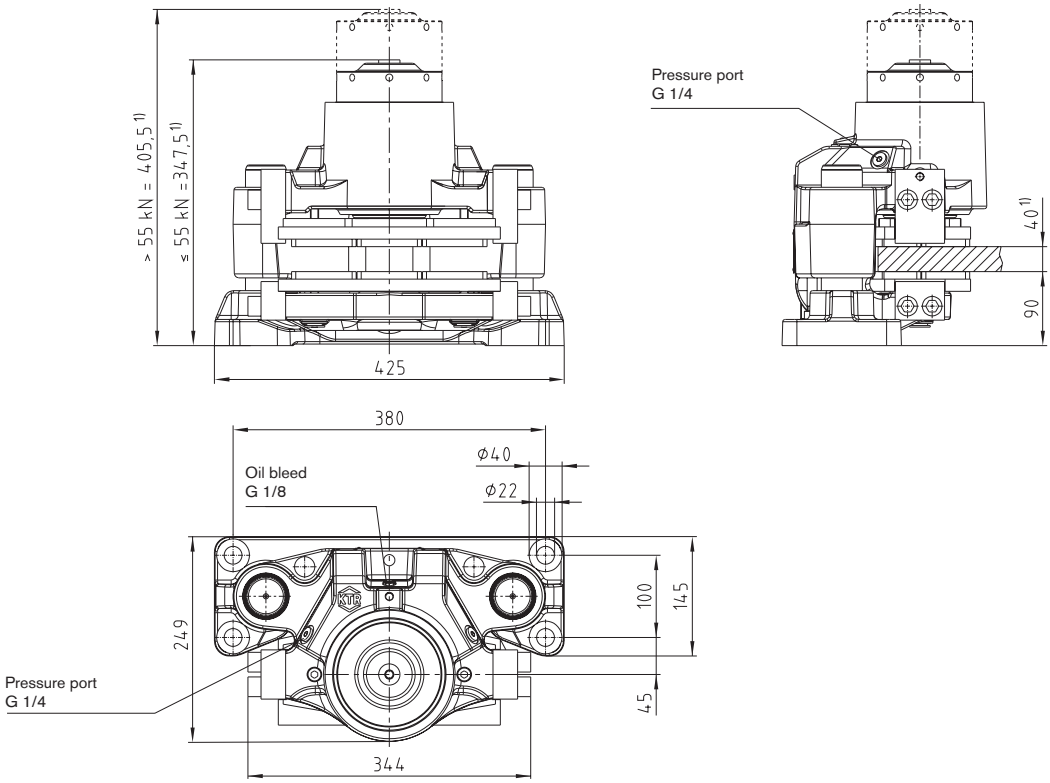
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® S-xx-F
Passive floating caliper brakes

Hydraulic brake system





KTR-STOP® S-xx-F			
Total weight 20 - 55 kN	Approx. 90 kg [1]	Max. operating pressure	200 bar
Total weight 60 - 80 kN	Approx. 95 kg [1]	Thickness of brake disk	20 mm - 40 mm
Width of brake pad	125 mm	Pressure port	G 1/4
Surface of each brake pad organic	28,700 mm²	Oil bleed	G 1/8
powder metal	26,800 mm²	Floating range on axles - towards mounting surface	5 mm
Max. wear of each brake pad	6 mm	Floating range on axles - away from mounting surface	10 mm
Nominal coefficient of friction [2]	μ = 0.4	Min. diameter of brake disk ØD$_A$	500 mm
Total brake piston surface - complete brake	69 cm²	Operating temperature	-20 °C to +50 °C
Volume with 1 mm stroke - complete brake	6.9 cm³		

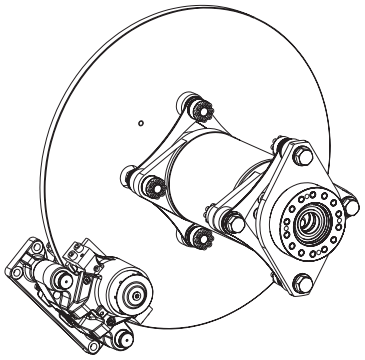
[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	S	-	40	-	F	B	-	30
KTR brake	Size of brake		Clamping force		Floater	Variant		Thickness of brake disk

Brake types						
Brake type [3]	Clamping force F_c [kN]	Loss of power [3] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				800	1500	2000
KTR-STOP® S-20-F	20	4.5	40	2900	4600	6900
KTR-STOP® S-25-F	25	5.0	50	3700	5800	8700
KTR-STOP® S-30-F	30	3.5	60	4400	6900	10400
KTR-STOP® S-35-F	35	8.0	80	5100	8100	12100
KTR-STOP® S-40-F	40	6.5	90	5900	9200	13900
KTR-STOP® S-45-F	45	6.0	100	6600	10400	15600
KTR-STOP® S-50-F	50	5.5	100	7400	11600	17400
KTR-STOP® S-55-F	55	5.0	110	8100	12700	19100
KTR-STOP® S-60-F	60	7.0	130	8800	13900	20800
KTR-STOP® S-65-F	65	6.0	140	9600	15000	22600
KTR-STOP® S-70-F	70	5.0	150	10300	16200	24300
KTR-STOP® S-75-F	75	4.5	160	11100	17400	26100
KTR-STOP® S-80-F	80	5.0	170	11800	18500	27800

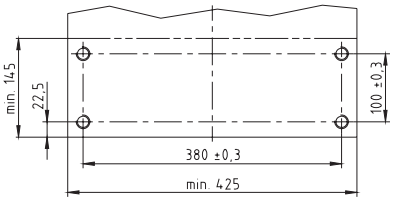
[3] With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

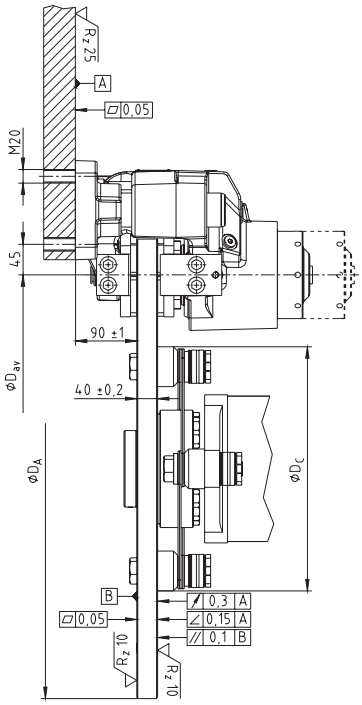


Calculation of brake disk

up to $ØD_A$ = 1000 mm	from $ØD_A$ = 1000 mm to $ØD_A$ = 1800 mm	from $ØD_A$ = 1800 mm
$D_{C\ max.} = D_A - 305$	$D_{C\ max.} = D_A - 295$	$D_{C\ max.} = D_A - 285$
$D_{av} = D_A - 130$	$D_{av} = D_A - 120$	$D_{av} = D_A - 110$

Connection dimensions of brake





$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

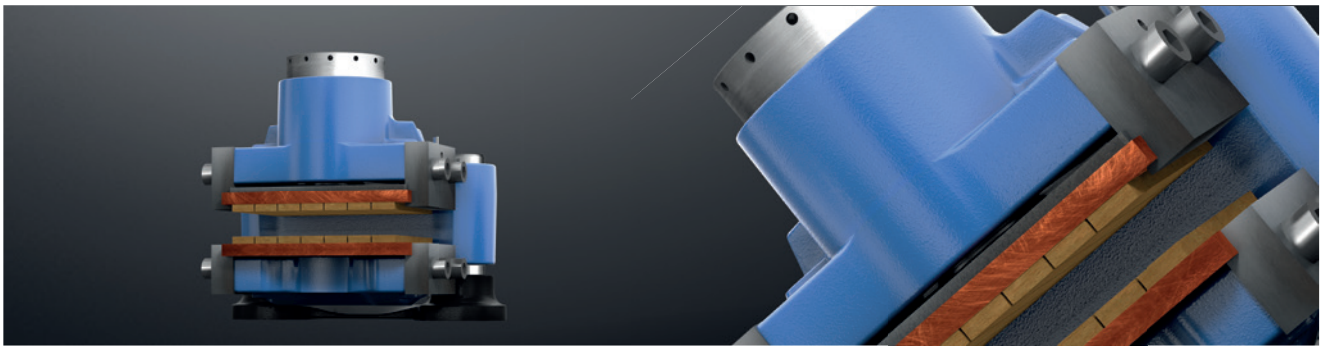
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

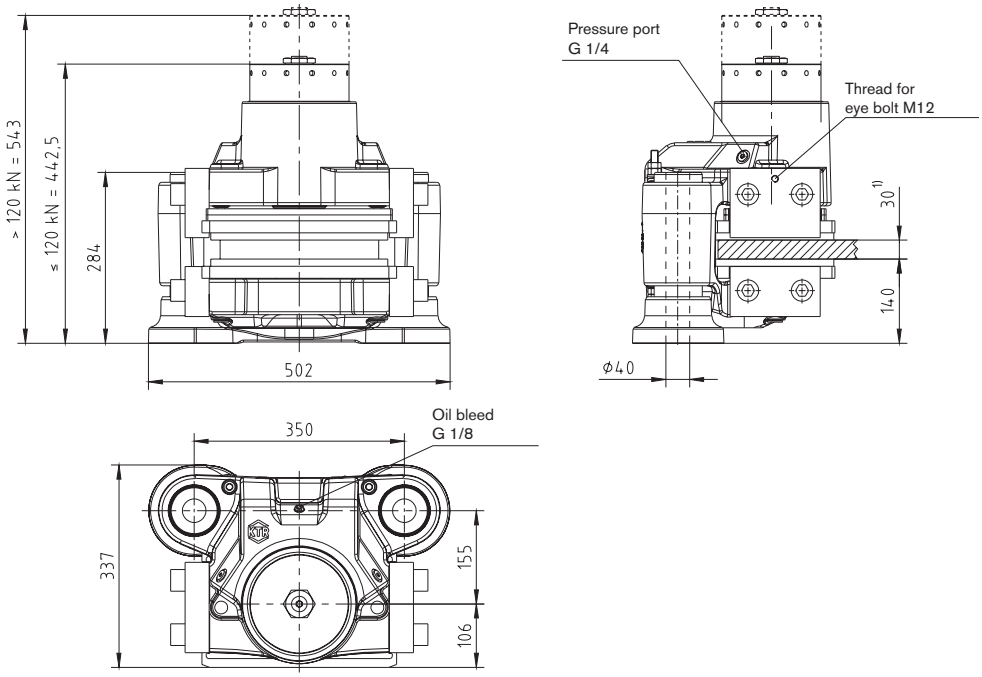
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® M-xxx-F
Passive floating caliper brakes

Hydraulic brake system





KTR-STOP® M-xxx-F				
Total weight 30 - 120 kN		Approx. 220 kg [1]	Max. operating pressure	200 bar
Total weight 125 - 180 kN		Approx. 235 kg [1]	Thickness of brake disk	30 mm - 50 mm
Width of brake pad		200 mm	Pressure port	G 1/4
Surface of each brake pad	organic	57,900 mm²	Oil bleed	G 1/8
	powder metal	53,500 mm²	Floating range on axles - towards mounting surface	5 mm
Max. wear of each brake pad		8 mm	Floating range on axles - away from mounting surface	below 120 kN = 10 mm
Nominal coefficient of friction [2]		μ = 0.4		above 120 kN = 5 mm
Total brake piston surface - complete brake		137.4 cm²	Min. diameter of brake disk $ØD_A$	800 mm
Volume with 1 mm stroke - complete brake		13.74 cm³	Operating temperature	-20 °C to +50 °C

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	M	-	100	-	F	B	-	40
KTR brake	Size of brake		Clamping force		Floater	Variant		Thickness of brake disk

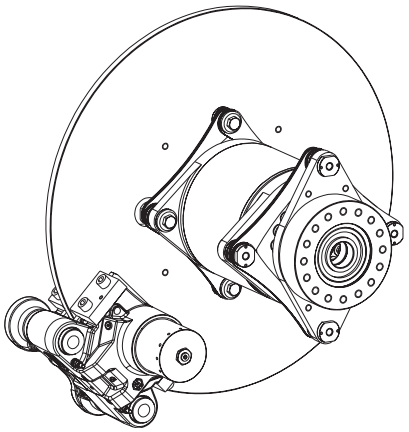
Brake types						
Brake type	Clamping force F_C [kN]	Loss of power [3] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				800	1500	2000
KTR-STOP® M-100-F	100	7.0	110	24000	52000	72000
KTR-STOP® M-110-F	110	6.5	120	26400	57200	79200
KTR-STOP® M-120-F	120	8.5	130	28800	62400	86400
KTR-STOP® M-130-F	130	5.0	140	31200	67600	93600
KTR-STOP® M-140-F	140	4.5	150	33600	72800	100800
KTR-STOP® M-150-F	150	7.5	165	36000	78000	108000
KTR-STOP® M-160-F	160	7.0	180	38400	83200	115200
KTR-STOP® M-170-F	170	6.5	190	40800	88400	122400
KTR-STOP® M-180-F	180	6.0	190	43200	93600	129600

[3] With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

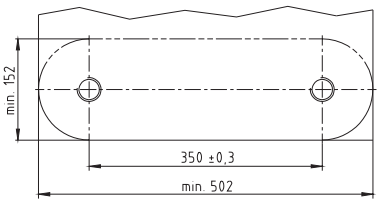
Calculation of brake disk

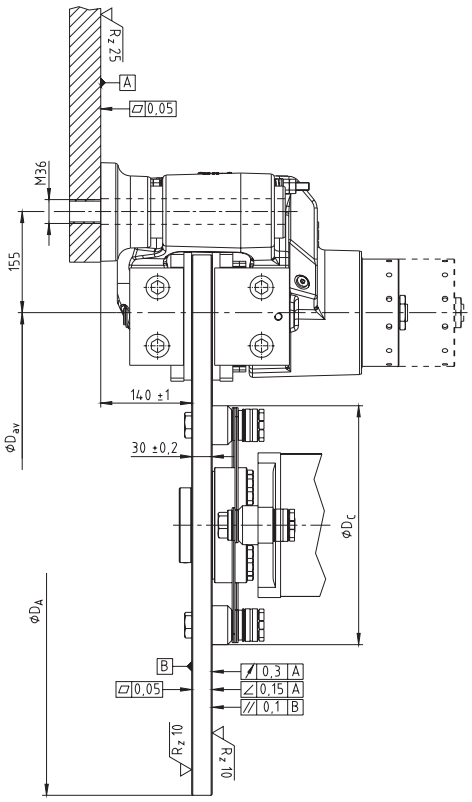
$D_{C\ max.} = D_A - 420$

$D_{av} = D_A - 200$



Connection dimensions of brake





$F_b = F_c \cdot 2 \cdot \mu$

$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$

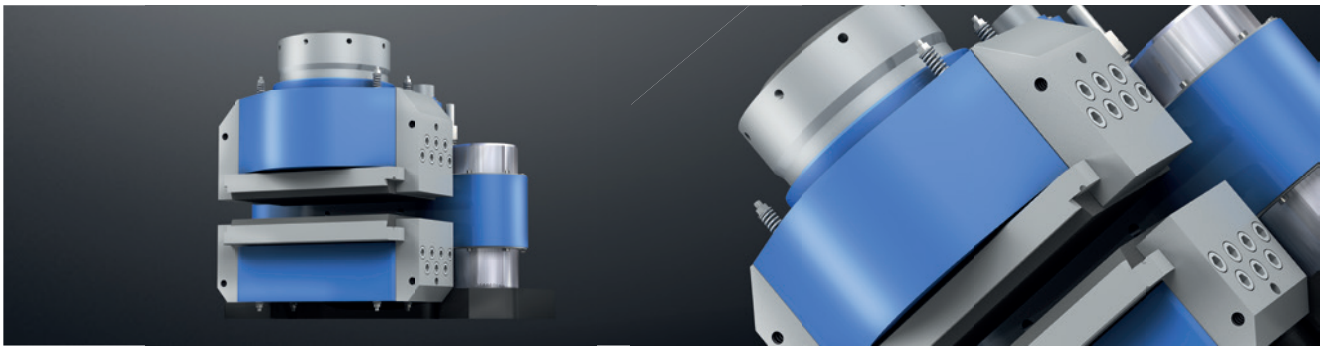
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

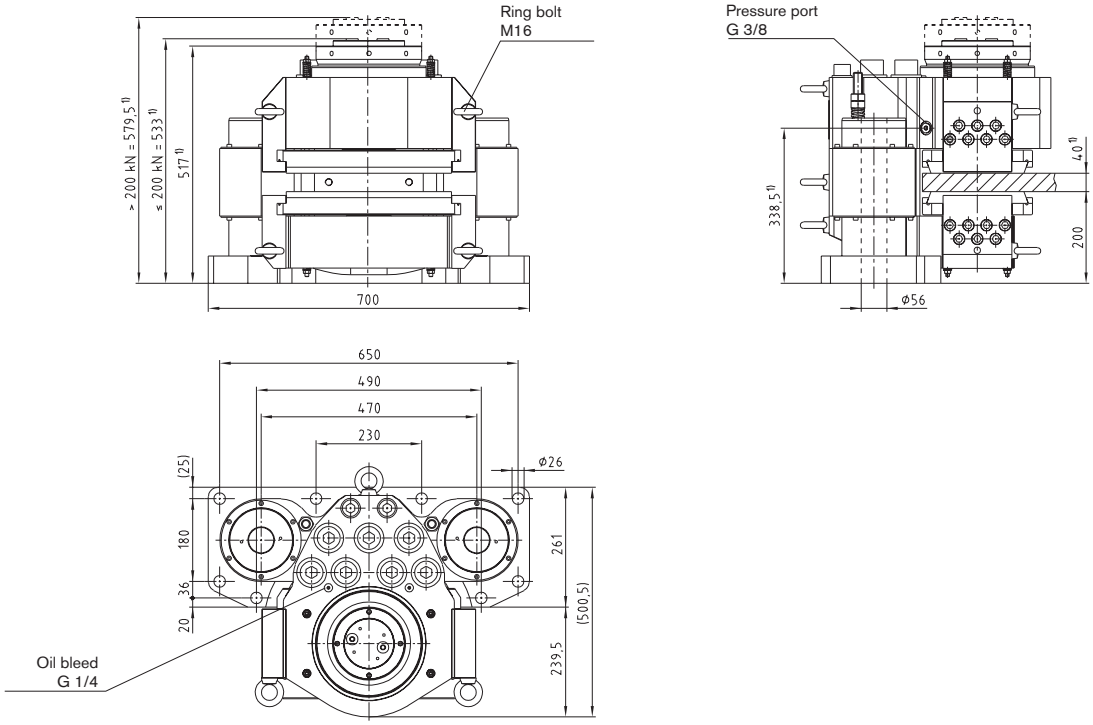
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® L-xxx-F
Passive floating caliper brakes

Hydraulic brake system





KTR-STOP® L-xxx-F			
Total weight	Approx. 585 - 600 kg 1)	Max. operating pressure	200 bar
Width of brake pad	240 mm	Thickness of brake disk	30 mm - 60 mm
Surface of each brake pad (organic/powder metal)	72,900 mm²	Pressure port	G 3/8
Max. wear of each brake pad	6 mm	Oil bleed	G 1/4
Nominal coefficient of friction 2)	μ = 0.4	Floating range on axles - towards mounting surface	5 mm
Total brake piston surface - complete brake	267 cm²	Floating range on axles - away from mounting surface	10 mm
Volume with 1 mm stroke - complete brake	26.7 cm³	Min. diameter of brake disk ØD$_A$	1000 mm
		Operating temperature	-20 °C to +50 °C

1) Dimensions and weight depending on thickness of brake disk.
2) The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	L	-	200	-	F	A	-	50
KTR brake	Size of brake		Clamping force		Floater	Variant		Thickness of brake disk

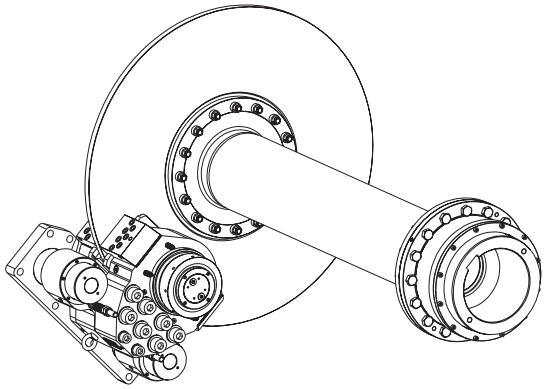
Brake types						
Brake type [3]	Clamping force F_C [kN]	Loss of power [4] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				1000	2000	3000
KTR-STOP® L-150	150	6.0	80	46000	106000	166000
KTR-STOP® L-200	200	5.0	110	61000	141000	221000
KTR-STOP® L-250	250	6.0	140	77000	177000	277000
KTR-STOP® L-300	300	5.0	170	92000	212000	332000
KTR-STOP® L-350	350	7.0	190	107000	247000	387000

[3] Other brake types on request
[4] With a stroke of 1 mm (1 mm wear of brake pad on each side)

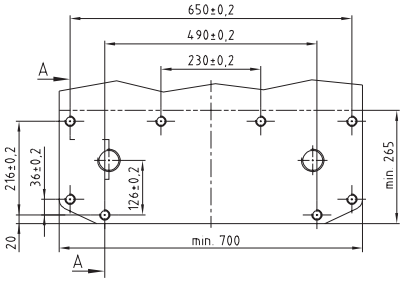
Calculation of brake disk

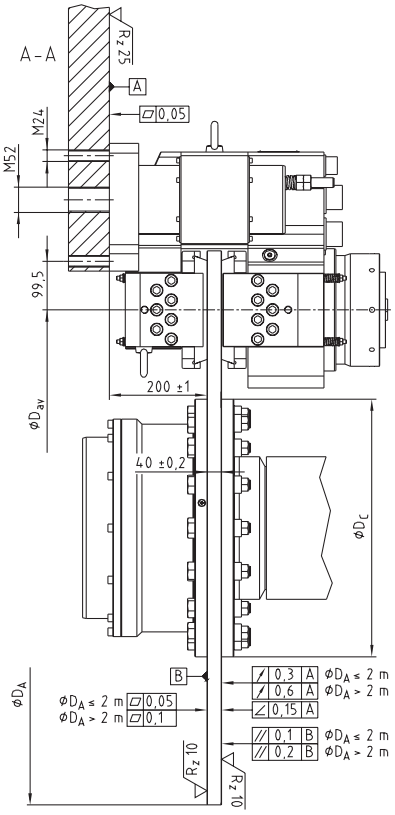
$$D_{C\ max.} = D_A - 570$$

$$D_{av} = D_A - 230$$



Connection dimensions of brake





$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

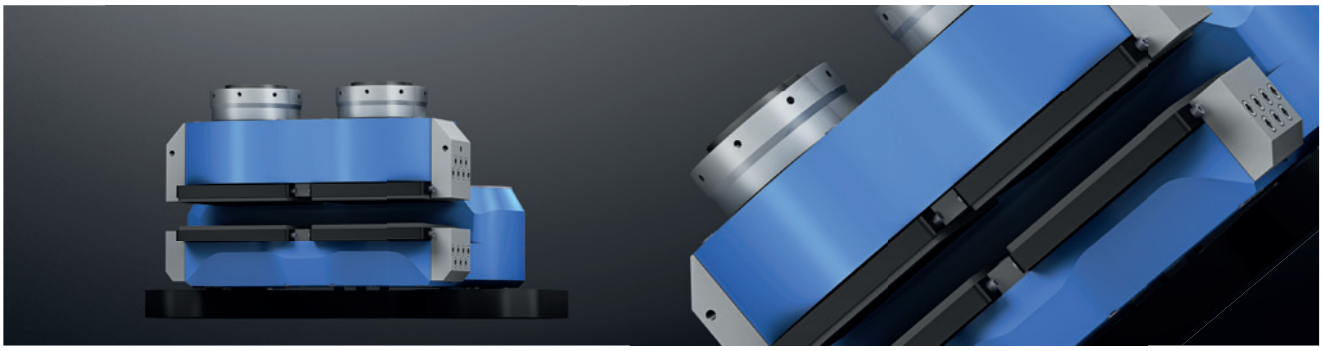
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

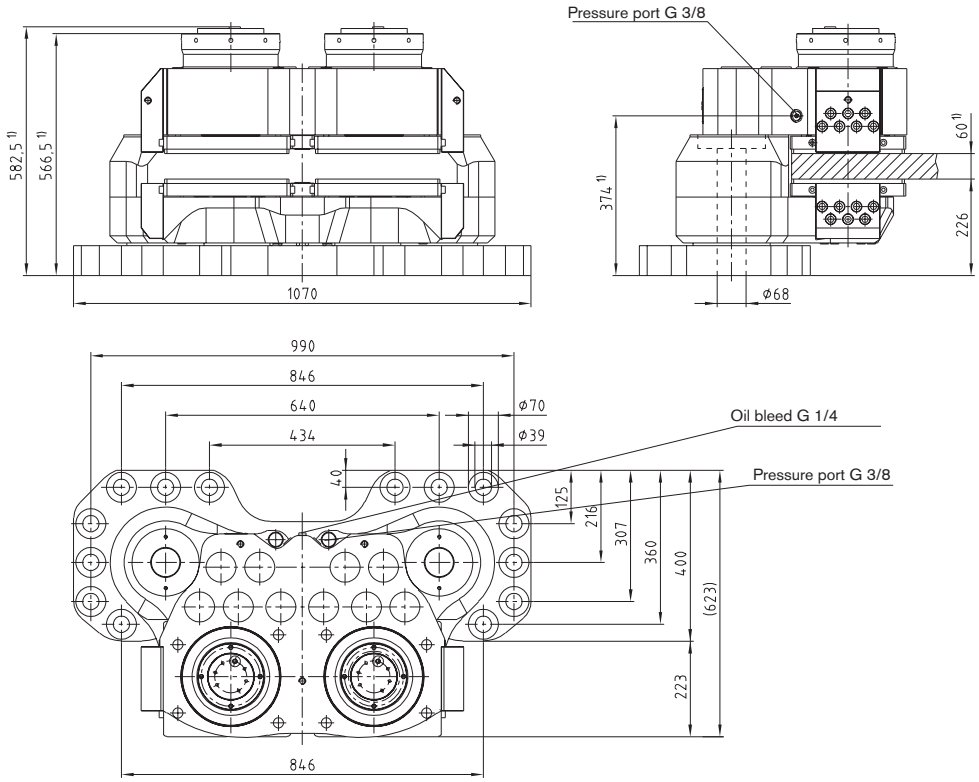
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® XL-xxx-F
Passive floating caliper brakes

Hydraulic brake system





KTR-STOP® XL-xxx-F			
Total weight	Approx. 1080 kg [1]	Max. operating pressure	200 bar
Width of brake pad	270 mm	Thickness of brake disk	40 mm - 80 mm
Surface of each brake pad (organic/powder metal)	76,800 mm²	Pressure port	G 3/8
Max. wear of each brake pad	6 mm	Oil bleed	G 1/4
Nominal coefficient of friction [2]	μ = 0.4	Floating range on axles - towards mounting surface	5 mm
Total brake piston surface - complete brake	452 cm²	Floating range on axles - away from mounting surface	10 mm
Volume with 1 mm stroke - complete brake	45.2 cm³	Min. diameter of brake disk $ØD_A$	1,500 mm
		Operating temperature	-20 °C to +50 °C

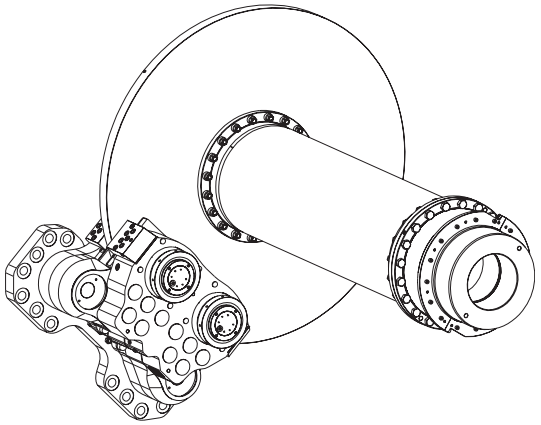
[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	XL -	600 -	F	A -	60
KTR brake	Size of brake	Clamping force	Floater	Variant	Thickness of brake disk

Brake types						
Brake type [3]	Clamping force F_C [kN]	Loss of power [4] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				1500	3000	4000
KTR-STOP® XL-400-F	400	4.5	130	198000	438000	598000
KTR-STOP® XL-500-F	500	7.5	160	247000	547000	747000
KTR-STOP® XL-600-F	600	6	190	296000	656000	896000

[3] Other brake types on request
[4] With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

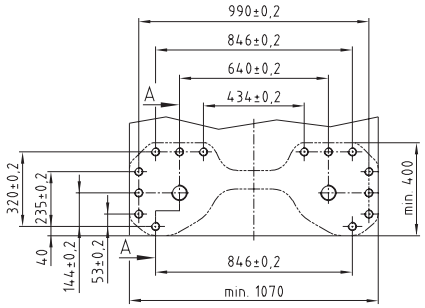


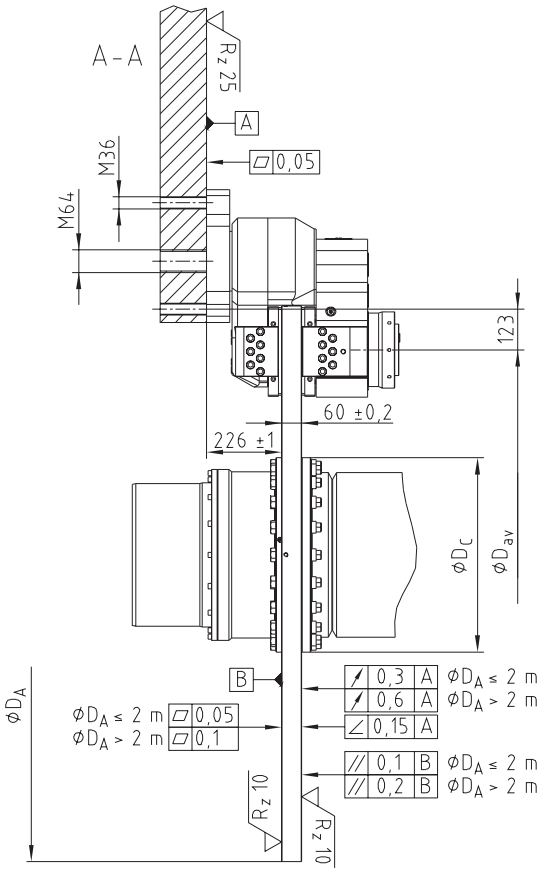
Calculation of brake disk

$D_{C\ max.} = D_A - 570$

$D_{av} = D_A - 230$

Connection dimensions of brake





$F_b = F_c \cdot 2 \cdot \mu$

$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$

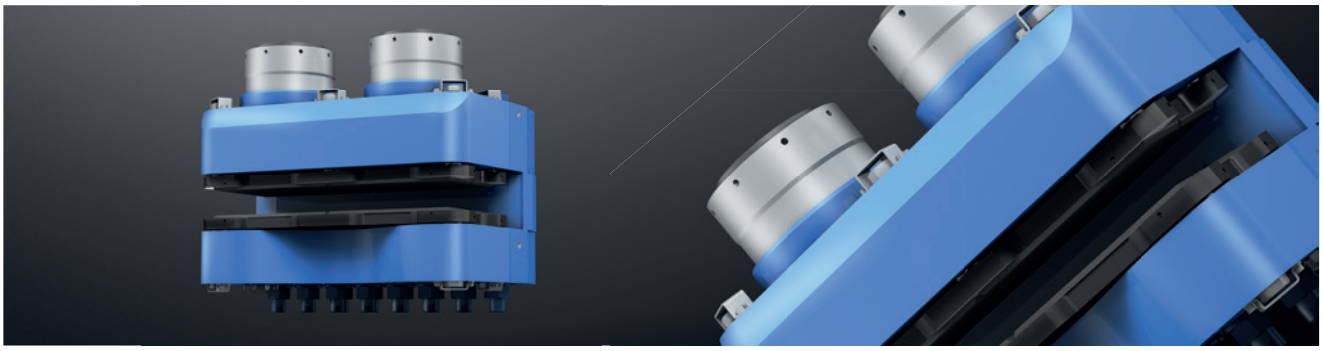
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

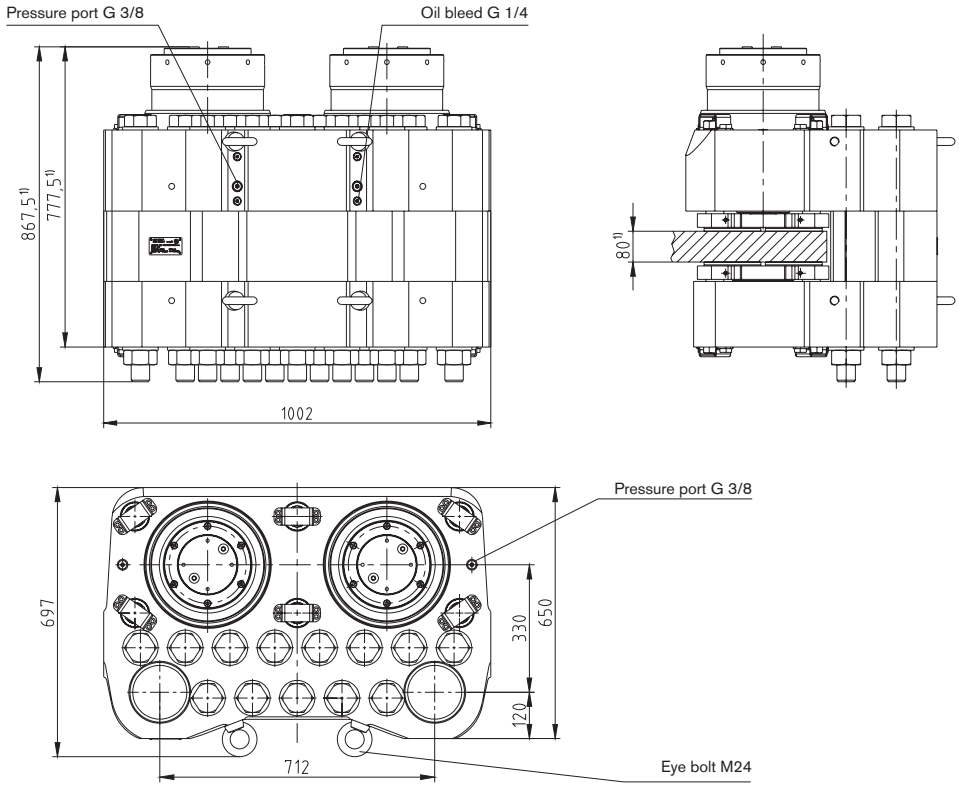
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® XXL-xxxx-F
Passive floating caliper brakes

Hydraulic brake system





KTR-STOP® XXL-xxxx-F			
Total weight	Approx. 2200 kg	Volume with 1 mm stroke - complete brake	92.4 cm³
Width of brake pad	340 mm	Max. operating pressure	220 bar
Surface of each brake pad organic	238,700 mm²	Thickness of brake disk	60 mm - 120 mm
powder metal	-	Pressure port	G 3/8
Max. wear of each brake pad	8 mm	Oil bleed	G 1/4
Nominal coefficient of friction 2)	μ = 0.4	Min. diameter of brake disk $ØD_A$	6,000 mm
Total brake piston surface - complete brake	924 cm²	Operating temperature	-20 °C to +50 °C

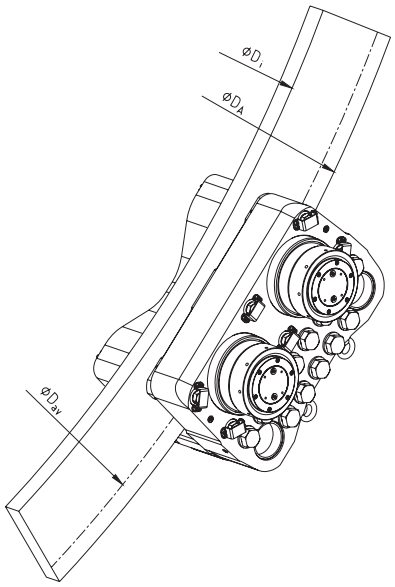
1) Dimensions and weight depending on thickness of brake disk.
2) The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	XXL -	1000 -	F	A -	80
KTR brake	Size of brake	Clamping force	Floater	Variant	Thickness of brake disk

Brake types			
Brake type [3]	Clamping force F_C [kN]	Loss of power [4] [%]	Opening pressure [bar]
KTR-STOP® XXL-800-F	800	6	125
KTR-STOP® XXL-1000-F	1000	4.5	150
KTR-STOP® XXL-1200-F	1200	4	175

[3] Other brake types on request
[4] With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

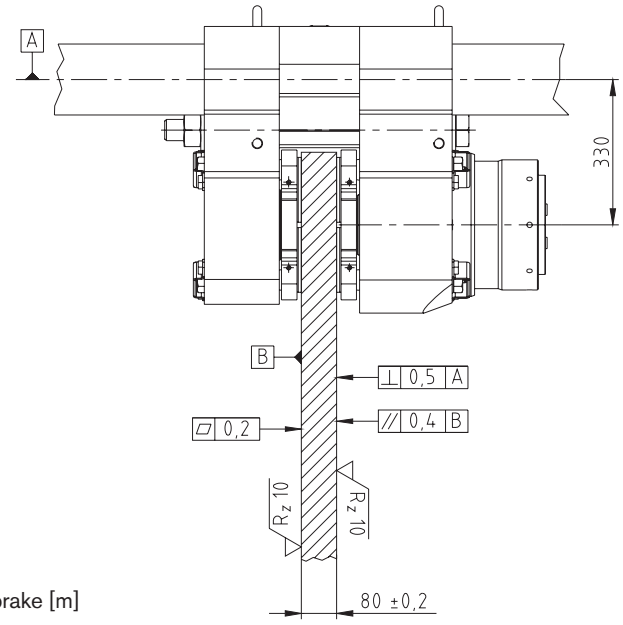


Calculation of brake disk

$$D_{Cmax} = D_A - 780$$

$$D_{av} = D_A - 330$$

Connection dimensions of brake



$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

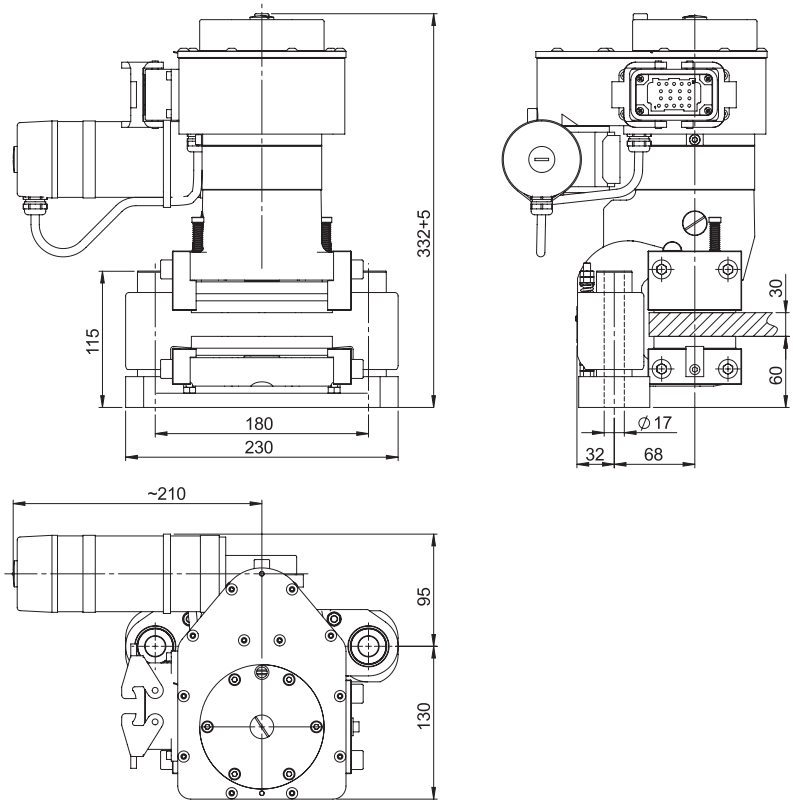
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP XS-P-xx-F
Passive floating caliper brakes

Electromechanical brake system



EMB-STOP XS-P-xx-F					
Total weight		Approx. 28 kg	Thickness of brake disk		20 mm, 25 mm, 30 mm
Width of brake pad		70 mm	Operating voltage		400 VAC, 50 Hz
Surface of each brake pad	organic	8,000 mm²	Size of industrial connector		Han10B / HAN18EE (male)
	powder metal	5,800 mm²	Floating range on axles - towards mounting surface		5 mm
Wear of pad on each side (max.)		5 mm	Floating range on axles - away from mounting surface		5 mm
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Min. diameter of brake disk ØDA		300 mm
Clamping force, max.		12 kN	Operating temperature		-20 °C to +50 °C
Power loss with 1mm stroke (0.5 on each side)		10%			

[1] Tolerances depending on clearance for release.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

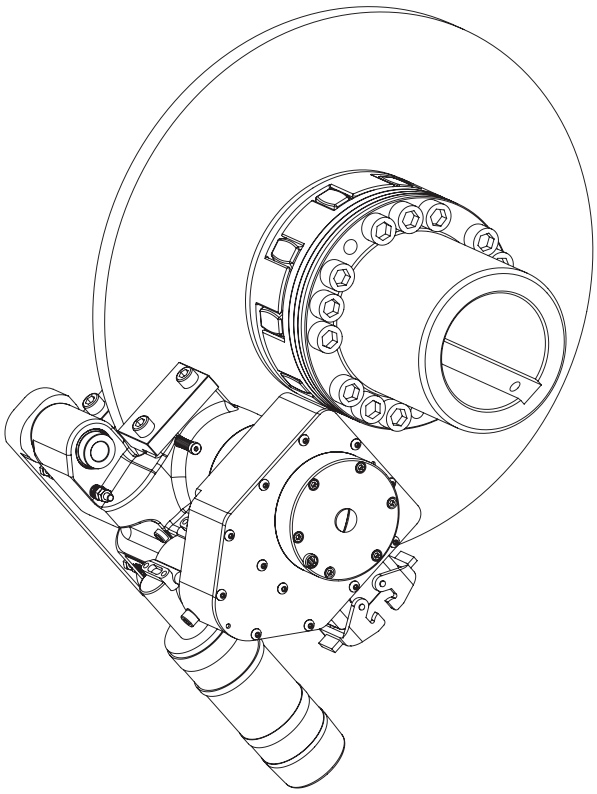
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

EMB-STOP	XS	-	P	-	12	-	F	B	-	30
EMB brake	Size of brake		Passive		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk

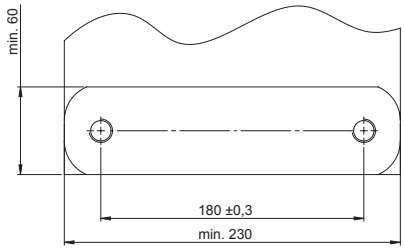


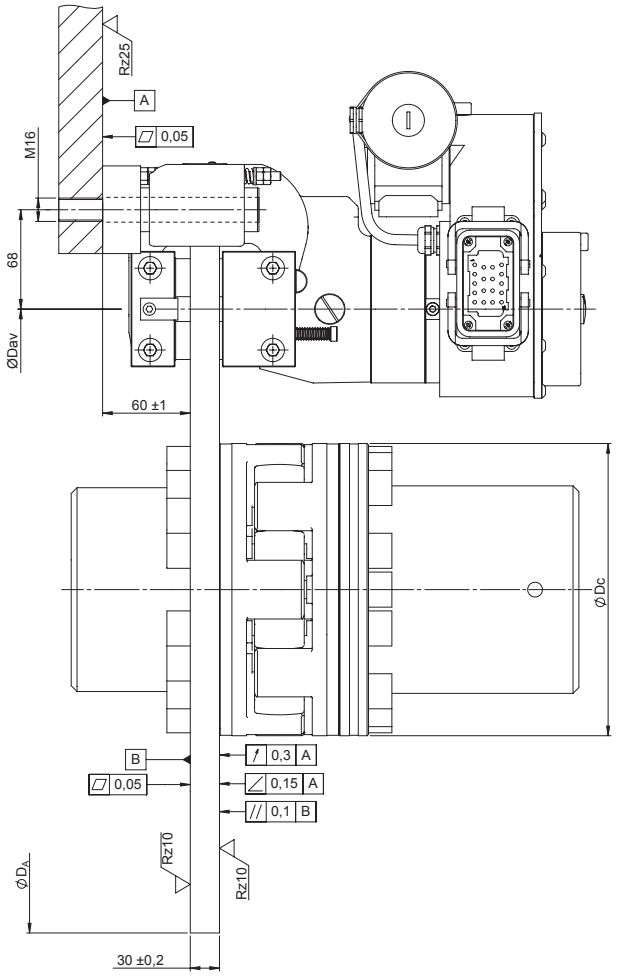
Calculation of brake disk

$D_{Cmax} = D_A - 195$

$D_{av} = D_A - 86$

Connection dimensions of brake



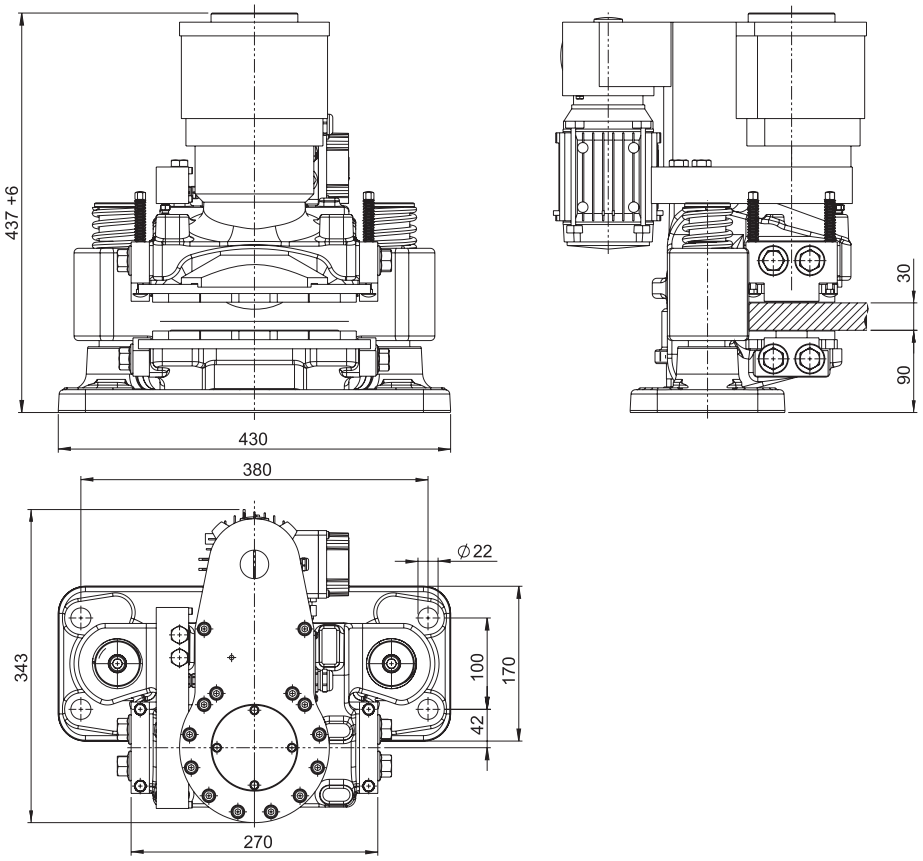


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP S-P-xx-F
Passive floating caliper brakes

Electromechanical brake system



EMB-STOP S-P-xx-F	
Total weight	93 kg
Thickness of brake disk	25 mm, 30 mm, 35 mm
Wear of pad on each side (max.)	4 mm
Coefficient of friction of pad, nominal value [2]	μ = 0.4
Clamping force, min.	30 kN
Clamping force, max.	50 kN
Operation temperature range	-30 °C to +50 °C
Motor power	250 W
Motor voltage	400 VAC. 50 Hz
Voltage of electric signals	230 VAC/24 VDC

[1] Tolerances depending on clearance for release.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

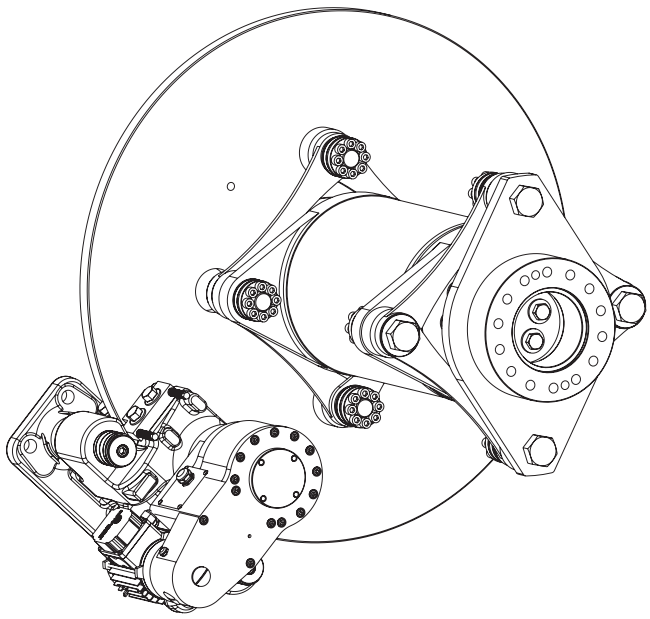
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

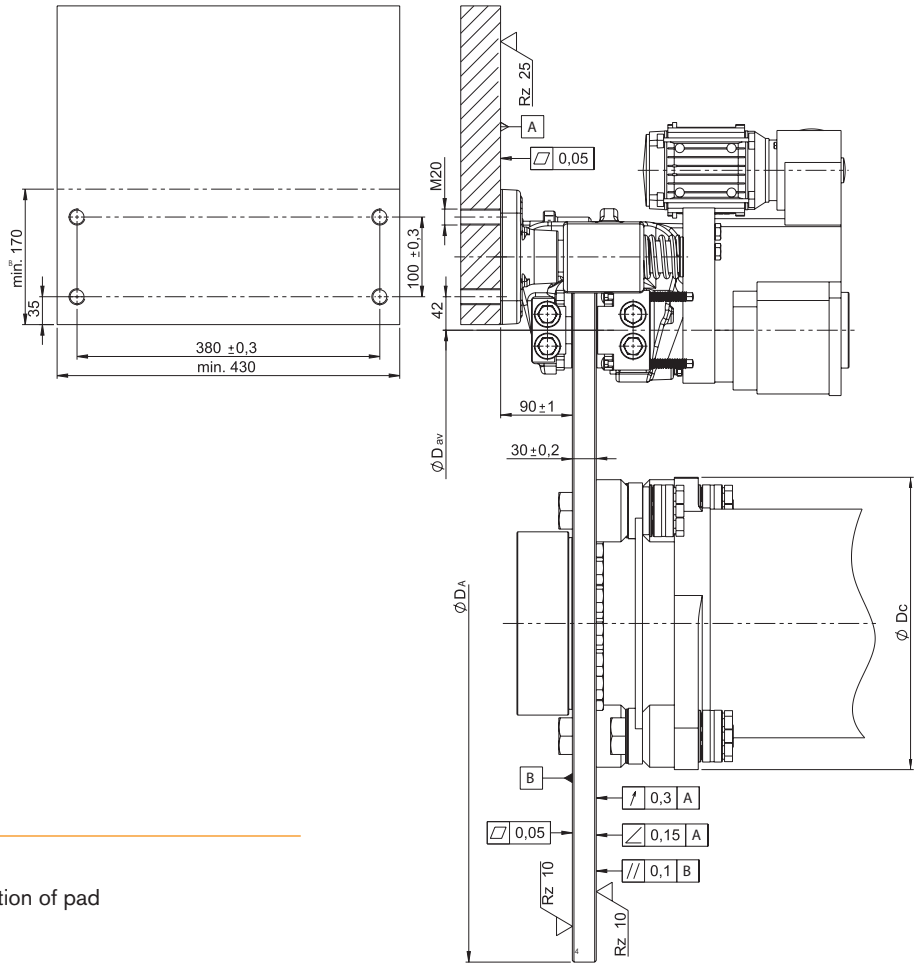
EMB-STOP	S	-	P	-	50	-	F	B	-	30
EMB brake	Size of brake		Passive		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk



Calculation of brake disk

$ØD_A$ = 500 ... 1000 mm	$ØD_A$ = 1000 ... 1800 mm	$ØD_A$ = 1800 ... 3000 mm
$D_{av} = D_A - 130$	$D_{av} = D_A - 110$	$D_{av} = D_A - 105$

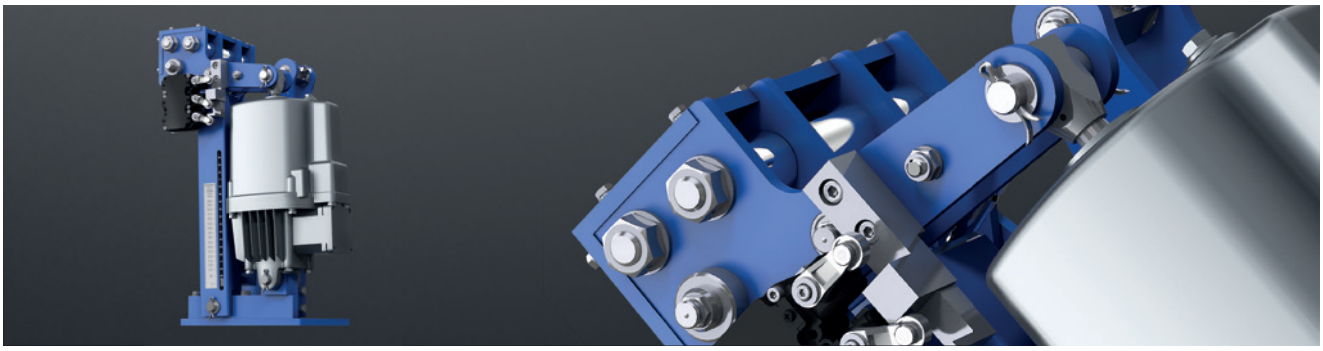
Connection dimensions of brake

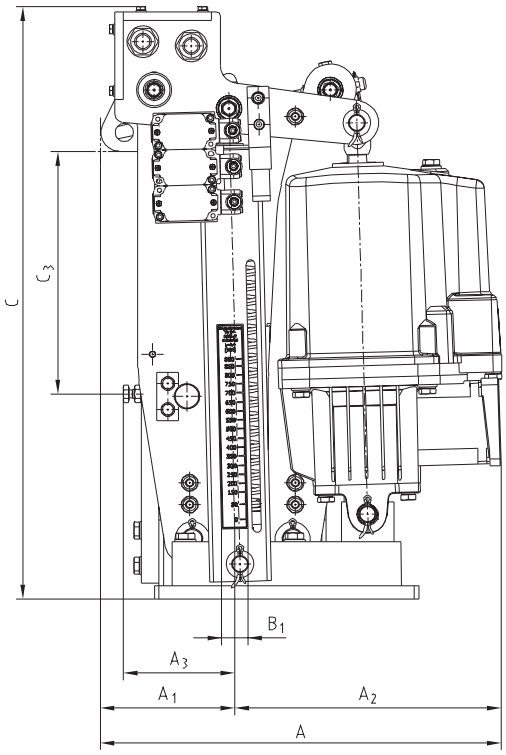


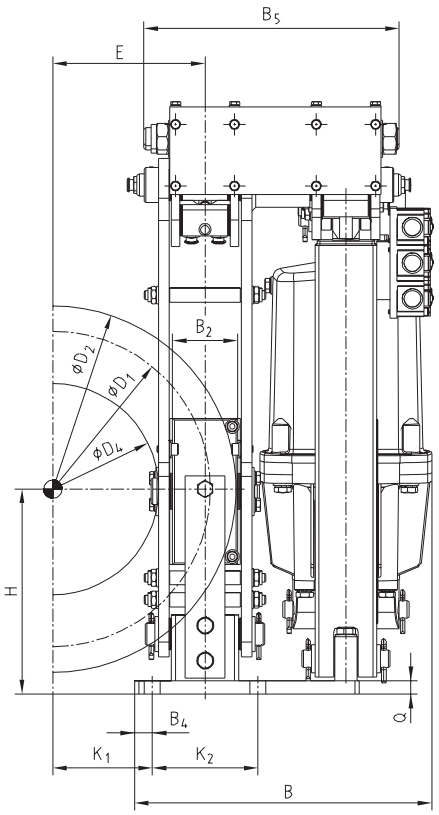
Optional

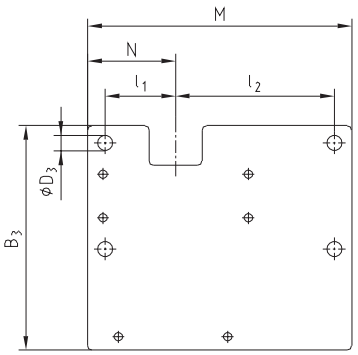
- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

Electrohydraulic brake system









The illustration shows the brake as a right-hand version R;
the left-hand version is structured laterally reversed

Ordering example:	KTR-STOP® TB	S1	Ed 500/60	R
	KTR brake	Size	Thruster	Type

Product features

- Disk brakes available as a right-hand and left-hand version
- Disk brakes in accordance with the industry standard
- The fully enclosed spiral element improves protection against damage and dirt
- Adjustable braking torque

Options

- Automatic wear adjustment
- Manual thruster
- Limit switch brake state and wear of pad
- Decelerated damping
- Alternative pad materials
- Bearing positions with potential relubrication
- Special painting
- Other options available: please consult with KTR

Applications

- Cranes/hoists
- Conveyors
- Steel mills
- Materials handling

Size S1

Thruster	A_{max}	$A1_{max}$	$A2_{max}$	A3	B_{max}	B3	B4	$B5_{max}$	C_{max}	C3	D3	H	I1	I2	K2	M	N	Q
Ed 230/50	470		275		312					260								
Ed 300/50	465	195	270	125	312	255	20	290	675	260	18	230	80	180	120	300	100	15
Ed 500/60	500		305		340					270								
Ed 800/60	500		305		340					270								

Brake disk						Brake pad		Weight	Max. braking torque in Nm, μ = 0.4 [1]			
Size	D2	B1	D1	$D4_{max}$	E	K1	B2	AB [cm²]	[kg] [2]	Ed 230/50	Ed 300/50	Ed 500/60	Ed 800/60
S1	315	30	237	120	118	58	76	105	60	360	460	890	1420
S1	355	30	277	160	138	78	76	105	60	420	535	1040	1660
S1	400	30	322	205	160	100	76	105	60	490	625	1210	1930
S1	450	30	372	255	185	125	76	105	60	565	720	1400	2225
S1	500	30	422	305	210	150	76	105	60	645	815	1585	2525
S1	560	30	482	365	240	180	76	105	60	735	935	1815	2885
S1	630	30	552	435	275	215	76	105	60	840	1070	2075	3305

Size S2

Thruster	A_{max}	$A1_{max}$	$A2_{max}$	A_3	B_{max}	B_3	B_4	$B5_{max}$	C_{max}	C_3	D_3	H	I_1	I_2	K_2	M	N	Q
Ed 500/60	615		360		366													
Ed 800/60	615	255	360	165	366	300	20	365	870	350	22	280	130	130	140	300	150	18
Ed 1250/60	605		350		405													
Ed 2000/60	605		350		405													

Brake disk						Brake pad		Weight	Max. braking torque in Nm, μ = 0.4 [1]			
Size	D_2	B_1	D_1	D_{4max}	E	K_1	B_2	AB [cm²]	[kg] [2]	Ed 500/60	Ed 800/60	Ed 1250/60	Ed 2000/60
S2	450	30	359	196	173	105	100	194	130	1200	1985	3005	4465
S2	500	30	409	246	198	130	100	194	130	1370	2260	3425	5090
S2	560	30	469	306	228	160	100	194	130	1570	2595	3925	5835
S2	630	30	539	376	263	195	100	194	130	1805	2980	4510	6705
S2	710	30	619	456	303	235	100	194	130	2075	3425	5180	7700
S2	800	30	709	546	348	280	100	194	130	2375	3925	5935	8820

Size S3

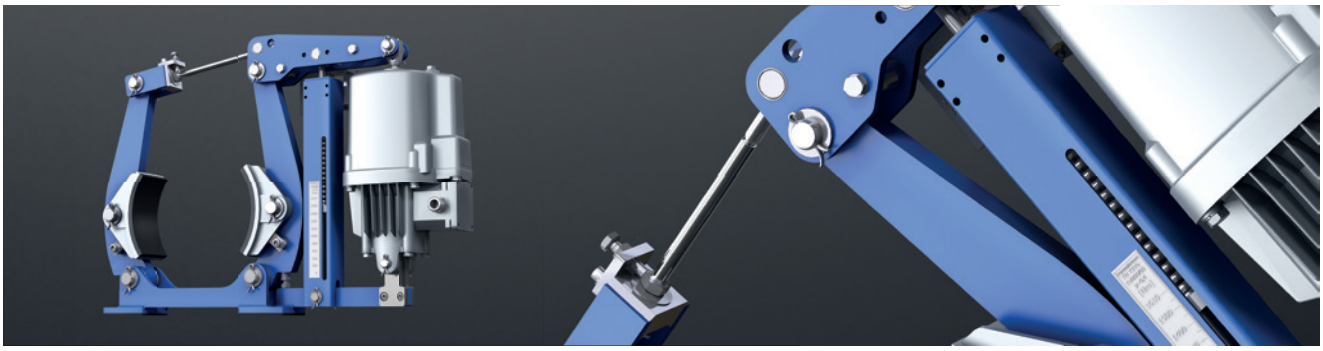
Thruster	A_{max}	$A1_{max}$	$A2_{max}$	A_3	B_{max}	B_3	B_4	$B5_{max}$	C_{max}	C_3	D_3	H	I_1	I_2	K_2	M	N	Q
Ed 1250/60																		
Ed 2000/60	620	285	335	190	472	370	30	436	1090	495	27	370	180	180	160	450	225	22
Ed 3000/60																		
Ed 3000/120																		

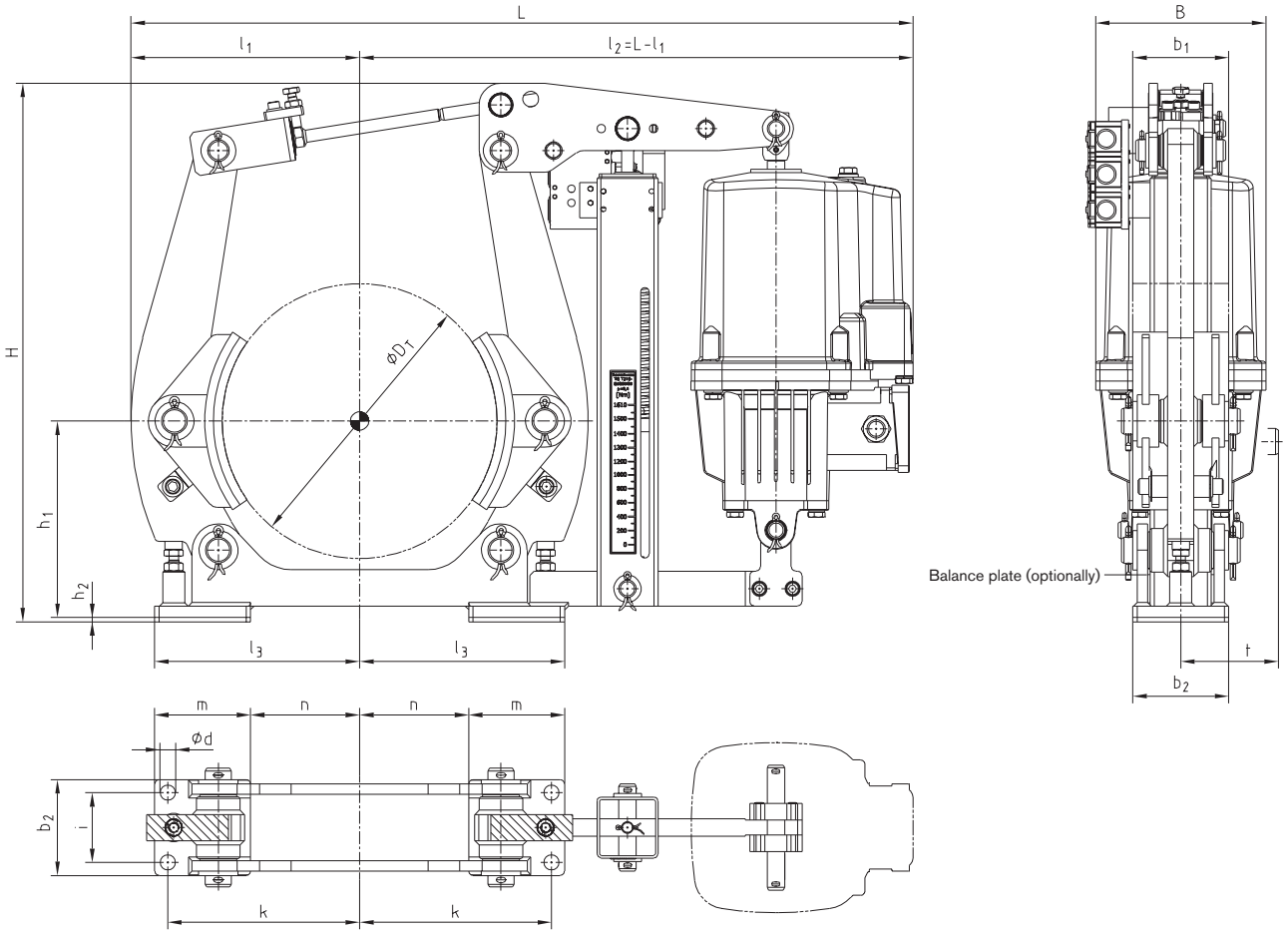
Brake disk						Brake pad		Weight	Max. braking torque in Nm, μ = 0.4 [1]			
Size	D_2	B_1	D_1	D_{4max}	E	K_1	B_2	AB [cm²]	[kg] [2]	Ed 1250/60	Ed 2000/60	Ed 3000/60	Ed 3000/120
S3	630	30	520	305	256	170	125	309	265	3410	5525	10230	11755
S3	710	30	600	385	296	210	125	309	265	3945	6400	11805	13560
S3	800	30	690	475	341	255	125	309	265	4540	7370	13580	15595
S3	900	30	790	575	391	305	125	309	265	5190	8390	15545	17690

Dimensions [mm]

[1] Air gap on each side approx. 1.5 mm
The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
[2] Without thruster

Electrohydraulic brake system





Ordering example:	KTR-STOP® TB	T315	-	Ed 500/60
	KTR brake	Size		Thruster

Product features

- Type of drum brakes acc. to DIN 15435
- The fully enclosed spiral element improves protection against damage and dirt
- Adjustable braking torque

Options

- Automatic wear adjustment
- Manual thruster
- Limit switch brake state and wear of pad
- Decelerated damping
- Alternative pad materials
- Bearing positions with potential relubrication
- Special painting
- Other options available: please consult with KTR

Applications

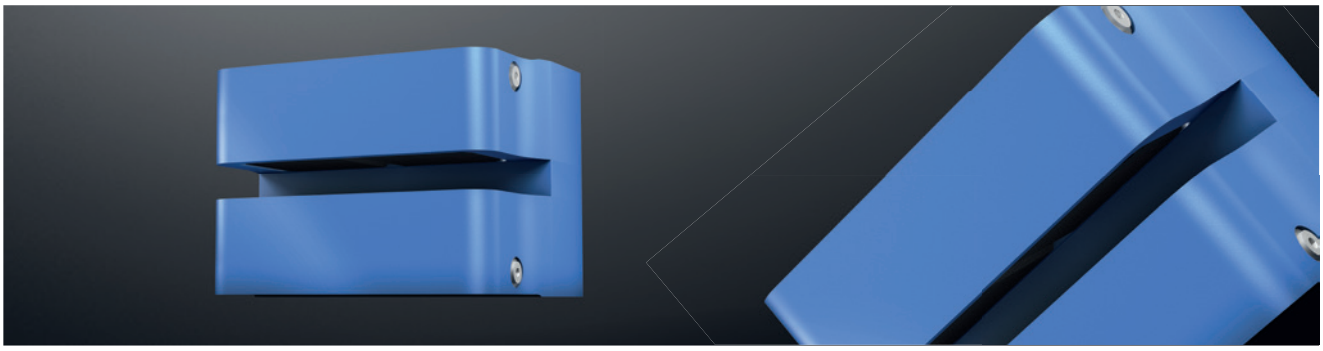
- Cranes/hoists
- Conveyors
- Steel mills
- Materials handling

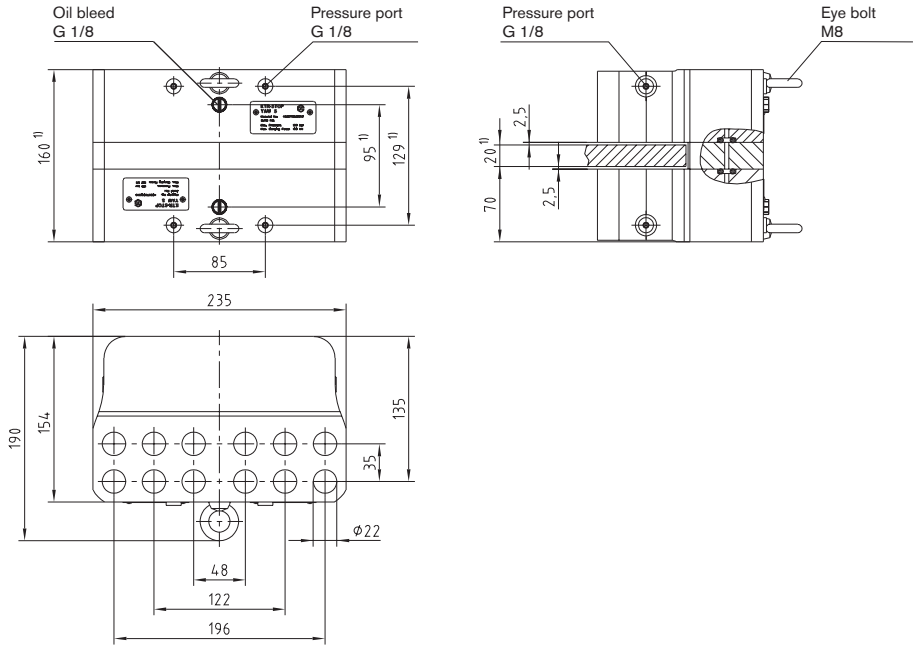
Drum brake																		
DT	Thruster acc. to DIN 15430	Braking torque [1]	B	b_1	b_2	d	H	h_1	h_2	L	l_1	l_3	i	k	m	n	t	m [2]
[mm]		Nm for μ = 0.4	[mm]															[kg]
200	Ed 230/50	50 - 300	160	75	80	14	475	155	5	660	180	165	55	145	80	85	117	26
	Ed 300/50	50 - 420								660								
250	Ed 230/50	50 - 300	160	95	100	18	570	185	5	730	210	195	65	180	100	95	135	35
	Ed 300/50	50 - 425								730								
	Ed 500/60	80 - 800	195	95	100	18	570	185	5	770	240	195	65	180	100	95	135	35
315	Ed 230/50	80 - 375	160	118	110	18	650	225	5	875	265	235	80	220	110	125	166	54
	Ed 300/50	80 - 525								875								
	Ed 500/60	120 - 940	195				650			910								55
	Ed 800/60	120 - 1610																
400	Ed 230/50	120 - 375	160	150	140	22	670	270	10	975	315	295	100	270	140	155	200	68
	Ed 300/50	120 - 525								975								
	Ed 500/60	200 - 940	195				670			1005								70
	Ed 800/60	200 - 1610																
	Ed 1250/60	200 - 2580	240				780			1090								95
	Ed 2000/60	200 - 4000																
500	Ed 500/60	250 - 1250	195	190	180	22	880	330	10	1195	395	350	130	325	180	170	245	130
	Ed 800/60	250 - 2080																
	Ed 1250/60	250 - 3200	240							1195								
	Ed 2000/60	250 - 5000																
	Ed 3000/60	250 - 7300																
630	Ed 1250/60	350 - 3200	240	236	220	27	960	410	10	1350	475	450	170	400	220	230	300	195
	Ed 2000/60	350 - 5000																
	Ed 3000/60	350 - 7600																
710	Ed 1250/60	450 - 3600	240	265	240	27	1120	460	10	1500	540	500	190	450	240	260	345	240
	Ed 2000/60	450 - 5600																
	Ed 3000/60	450 - 8600																
	Ed 3000/120	1000 - 10000																

[1] The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
[2] Without thruster

KTR-STOP® YAW S
Yaw brakes

Hydraulic brake system





KTR-STOP® YAW S			
Total weight	Approx. 31.5 kg [1]	Max. clamping force	106 kN
Width of brake pad	70 mm	Max. operating pressure (up to μ = 0.4)	160 bar
Surface of each brake pad	10,400 mm²	Thickness of brake disk [3]	10 mm - 30 mm
Max. wear of each brake pad	6 mm (material: organic)	External assembly of brake	400 mm
Nominal coefficient of friction [2]	μ = 0.4	Min. diameter of brake disk $ØD_A$	
Total brake piston surface - complete brake	133 cm²	Internal assembly of brake	700 mm
Volume with 1 mm stroke - complete brake	13.3 cm³	Min. diameter of brake disk $ØD_i$	
Pressure port	G 1/8	Operating temperature	-20 °C to +50 °C
Oil bleed	G 1/8		

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.
[3] Other thickness of disk on request.

Calculation of braking force/braking torque

$$F_b = F_c \cdot 2 \cdot \mu$$

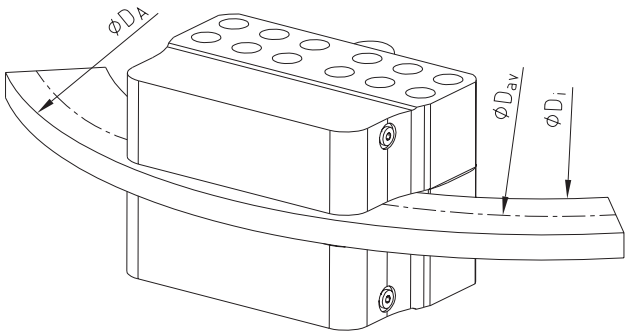
$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	YAW S	A	-	20
KTR brake	Size of brake	Variant		Thickness of brake disk

Internal assembly of brake



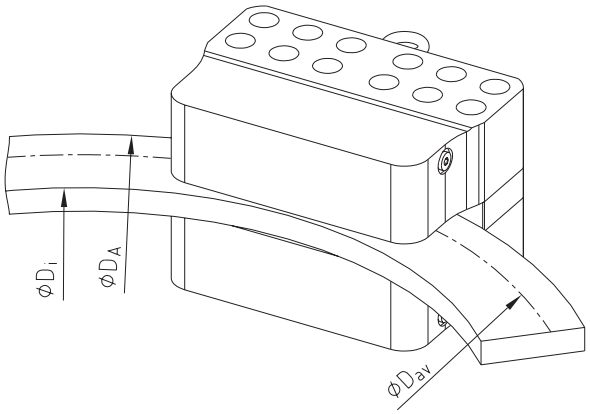
Calculation of brake disk

$$D_{i\ min.} = \sqrt{D_{av}^2 - 140 \cdot D_{av} + 44900}$$

$$D_{av} = \sqrt{D_i^2 - 40000} + 70$$

$$D_{A\ min.} = D_i + 170$$

External assembly of brake

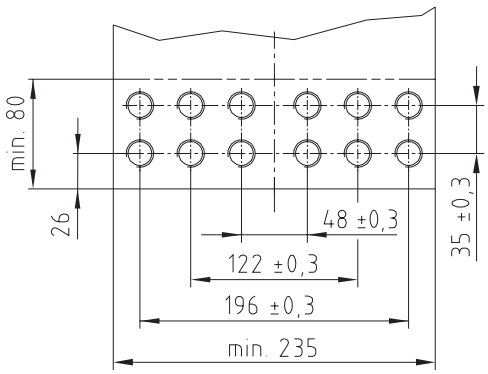


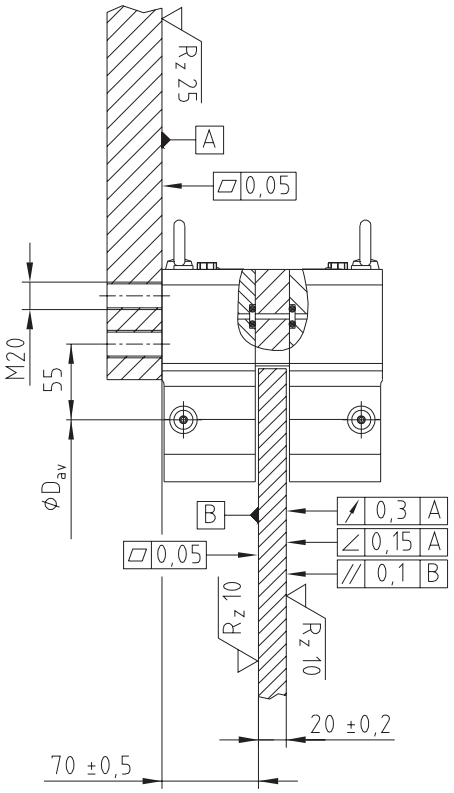
Calculation of brake disk

$$D_{av} = D_A - 70$$

$$D_{i\ max.} = D_A - 175$$

Connection dimensions of brake



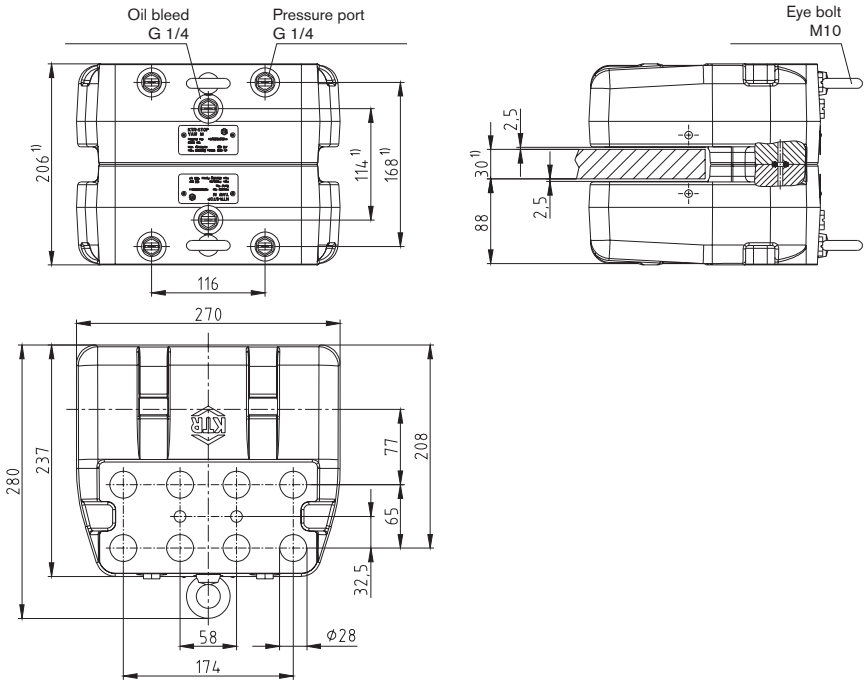


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® YAW M
Yaw brakes

Hydraulic brake system



KTR-STOP® YAW M			
Total weight	Approx. 63 kg [1]	Max. clamping force	203 kN
Width of brake pad	108 mm	Max. operating pressure (up to μ = 0.4)	160 bar
Surface of each brake pad	20,300 mm²	Thickness of brake disk [3]	30 mm - 50 mm
Max. wear of each brake pad	7 mm (material: organic)	External assembly of brake	500 mm
Nominal coefficient of friction [2]	μ = 0.4	Min. diameter of brake disk ØD$_A$	
Total brake piston surface - complete brake	254 cm²	Internal assembly of brake	900 mm
Volume with 1 mm stroke - complete brake	25.4 cm³	Min. diameter of brake disk ØD$_i$	
Pressure port	G 1/4	Operating temperature	-20 °C to +50 °C
Oil bleed	G 1/4		

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.
[3] Other thickness of disk on request.

Calculation of braking force/braking torque

$$F_b = F_c \cdot 2 \cdot \mu$$

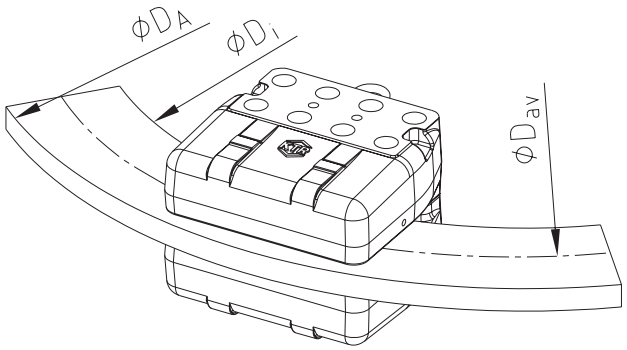
$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	YAW M	B	-	30
KTR brake	Size of brake	Variant		Thickness of brake disk

Internal assembly of brake



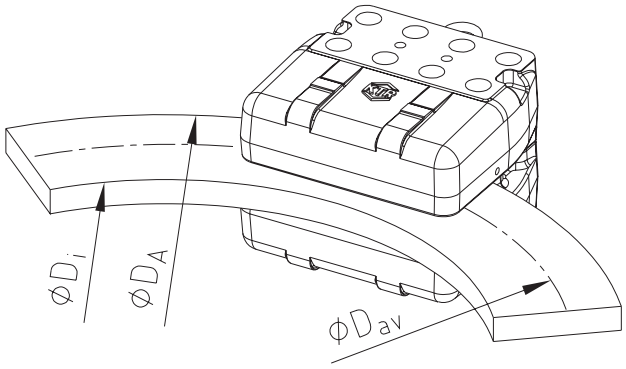
Calculation of brake disk

$$D_{i\ min.} = \sqrt{D_{av}^2 - 200 \cdot D_{av} + 46000}$$

$$D_{av} = \sqrt{D_i^2 - 36000} + 100$$

$$D_{A\ min.} = D_i + 250$$

External assembly of brake

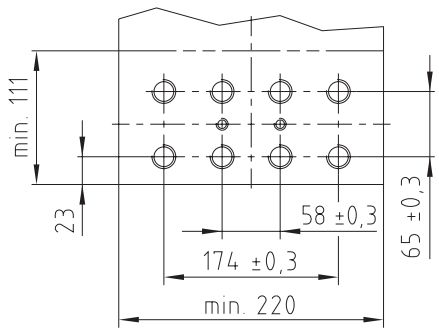


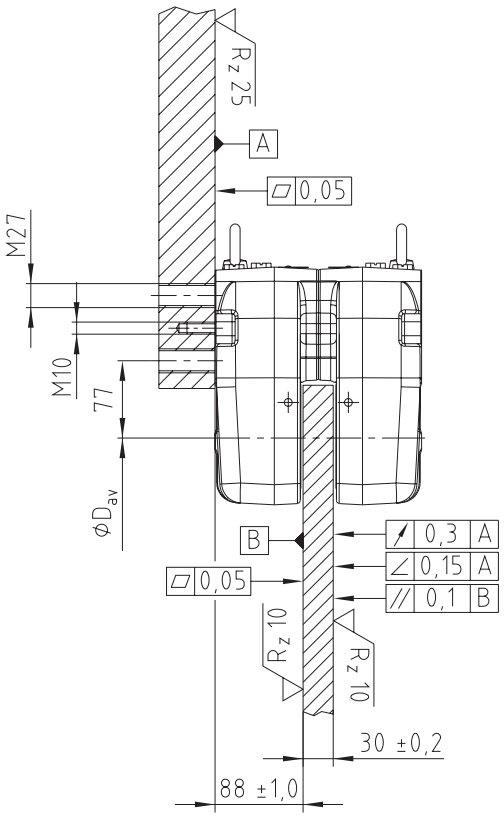
Calculation of brake disk

$$D_{av} = D_A - 102$$

$$D_{i\ max.} = D_A - 240$$

Connection dimensions of brake



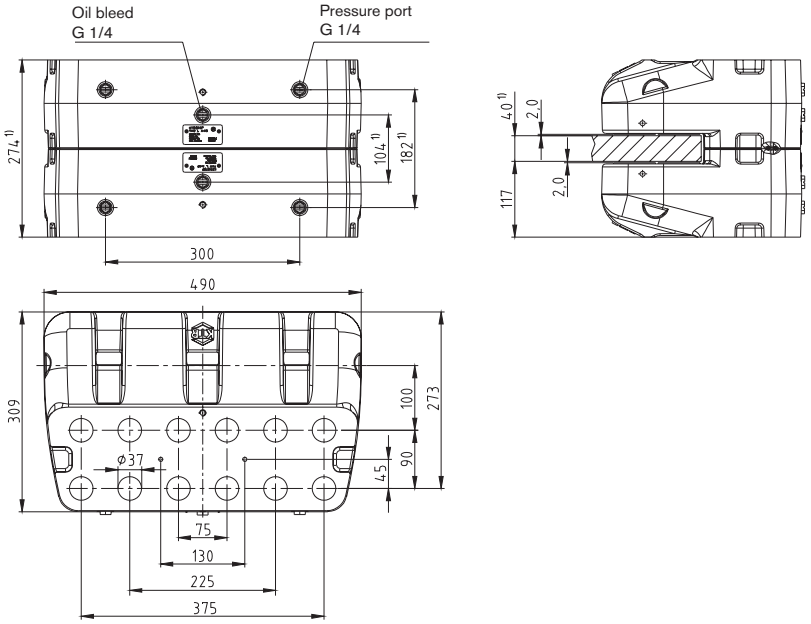


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® YAW L
Yaw brakes

Hydraulic brake system



KTR-STOP® YAW L			
Total weight	Approx. 176 kg [1]	Max. clamping force	542 kN
Width of brake pad	138 mm	Max. operating pressure (up to μ = 0.4)	160 bar
Surface of each brake pad	58,000 mm²	Thickness of brake disk [3]	40 mm - 60 mm
Max. wear of each brake pad	7 mm (material: organic)	External assembly of brake	2000 mm
Nominal coefficient of friction [2]	μ = 0.4	Min. diameter of brake disk ØD$_A$	
Total brake piston surface - complete brake	678 cm²	Internal assembly of brake	2500 mm
Volume with 1 mm stroke - complete brake	67.8 cm³	Min. diameter of brake disk ØD$_i$	
Pressure port	G 1/4	Operating temperature	-20 °C to +50 °C
Oil bleed	G 1/4		

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.
[3] Other thickness of disk on request.

Calculation of braking force/braking torque

$$F_b = F_c \cdot 2 \cdot \mu$$

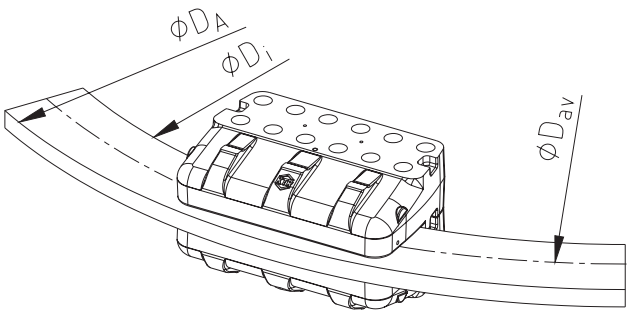
$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	YAW L	B	- 40
KTR brake	Size of brake	Variant	Thickness of brake disk

Internal assembly of brake



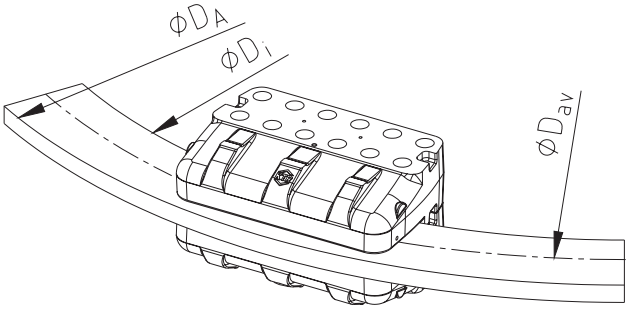
Calculation of brake disk

$$D_{i\ min.} = \sqrt{D_{av}^2 - 270 \cdot D_{av} + 200000}$$

$$D_{av} = \sqrt{D_i^2 - 180000} + 135$$

$$D_{A\ min.} = D_i + 320$$

External assembly of brake

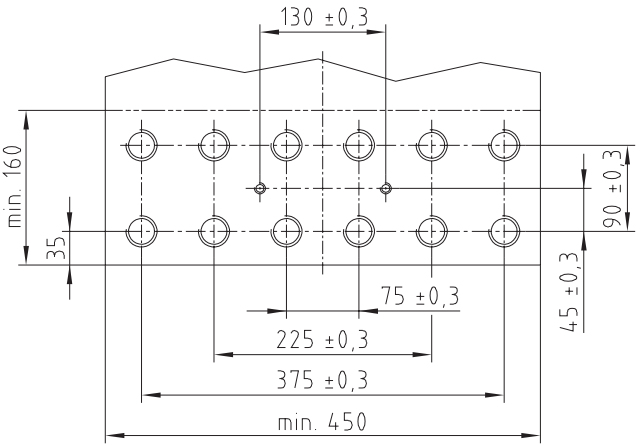


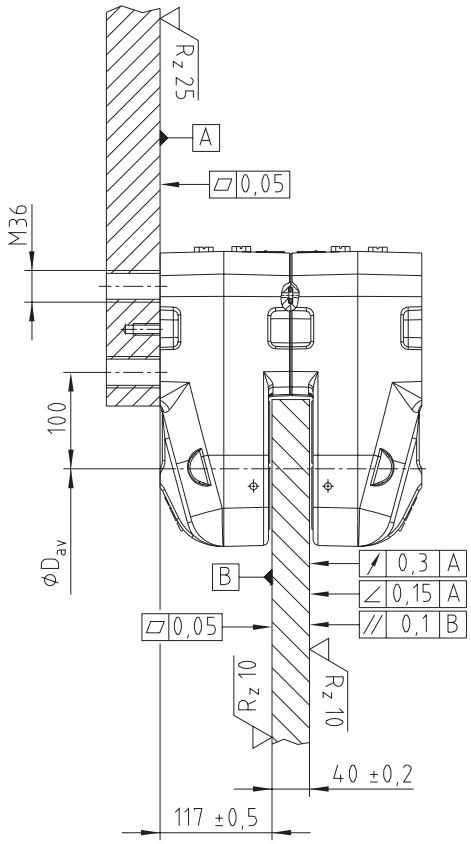
Calculation of brake disk

$$D_{av} = D_A - 136$$

$$D_{i\ max.} = D_A - 320$$

Connection dimensions of brake



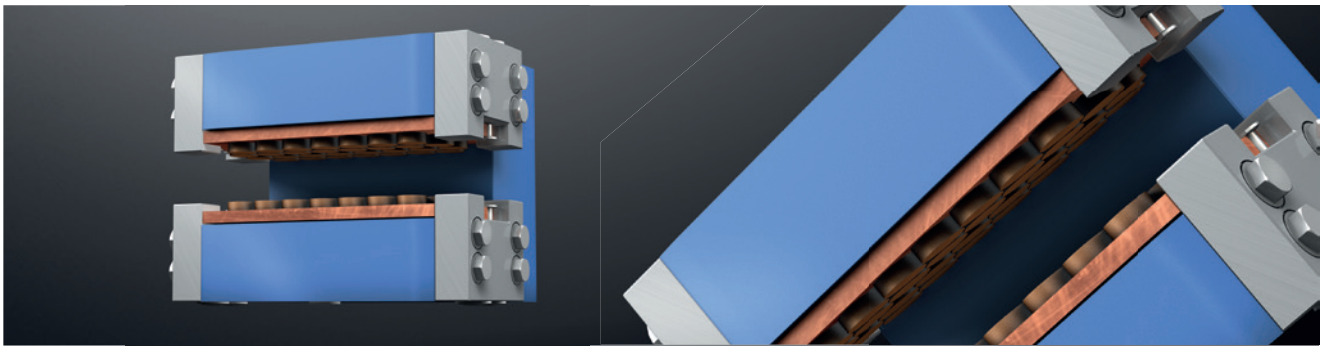


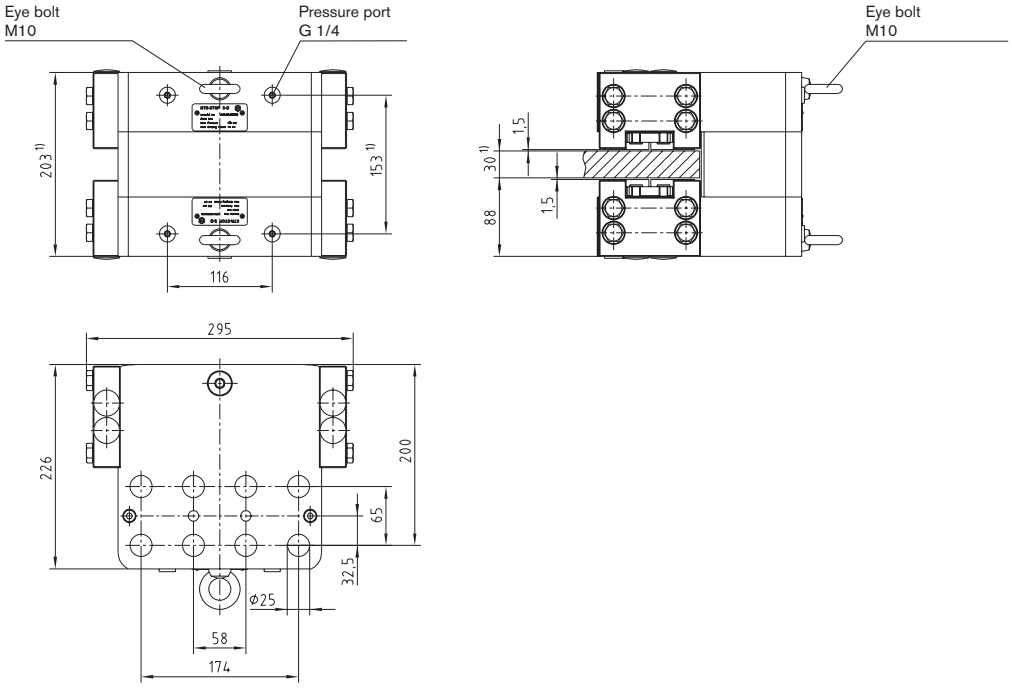
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® S-D
Active fixed caliper brakes

Hydraulic brake system





KTR-STOP® S-D				
Total weight		Approx. 67.5 kg [1]	Max. clamping force	141 kN
Width of brake pad		110 mm	Max. operating pressure	160 bar
Surface of each brake pad	organic	21,000 mm²	Thickness of brake disk	20 mm - 40 mm
	powder metal	14,000 mm²	Pressure port	G 1/4
Max. wear of each brake pad		6 mm	Min. diameter of brake disk ØD$_A$	400 mm
Nominal coefficient of friction [2]		μ = 0.4	Operating temperature	-20 °C to +50 °C
Total brake piston surface - complete brake		177 cm²		
Volume with 1 mm stroke - complete brake		17.7 cm³		

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Braking torque [Nm] with brake disk Ø [mm]			
Brake disk Ø [mm]	400	710	1000
Braking torque [Nm]	16900	34400	50700

Calculation of braking force/braking torque

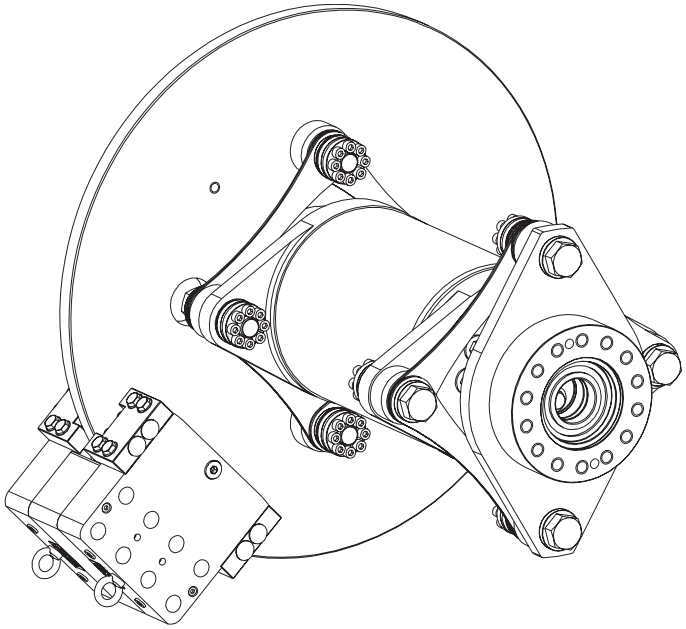
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	S-D	A	-	30
KTR brake	Size of brake	Variant		Thickness of brake disk

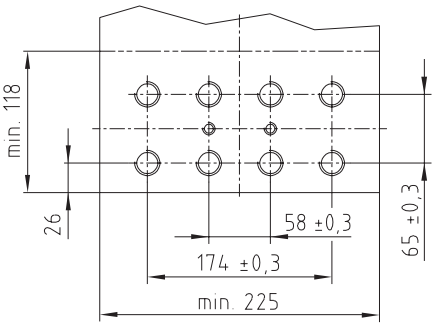


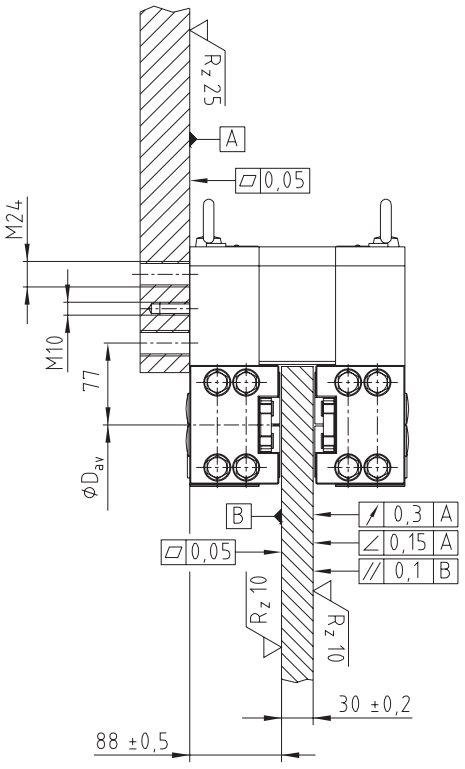
Calculation of brake disk

$D_{C\ max.} = D_A - 230$

$D_{av} = D_A - 100$

Connection dimensions of brake



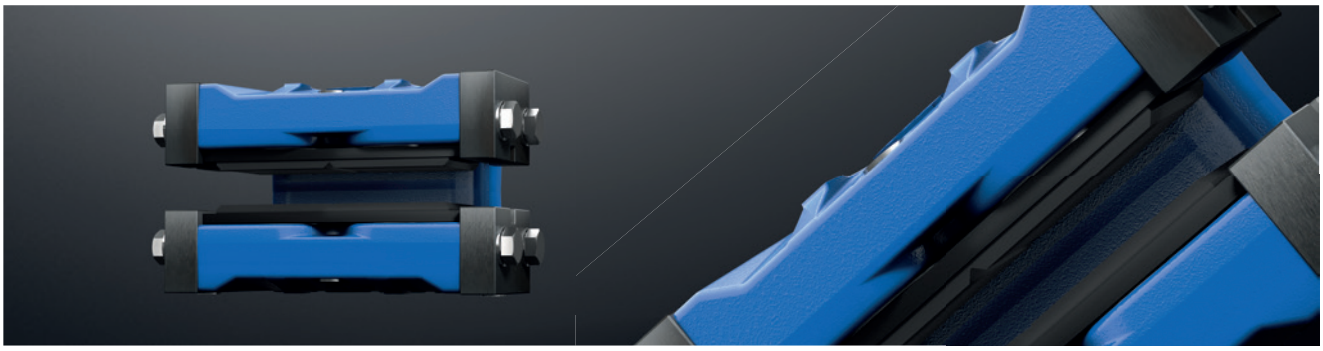


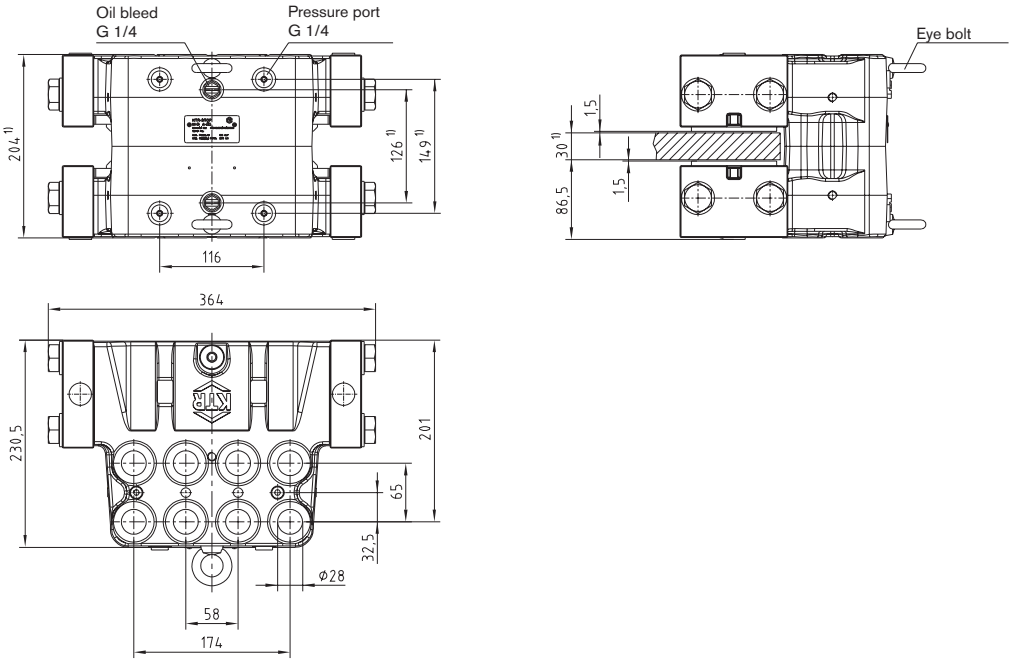
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® M-D
Active fixed caliper brakes

Hydraulic brake system





KTR-STOP® M-D				
Total weight		Approx. 72.5 kg 1)	Max. clamping force	203 kN
Width of brake pad		110 mm	Max. operating pressure	160 bar
Surface of each brake pad	organic	26,000 mm²	Thickness of brake disk	20 mm - 40 mm
	powder metal	–	Pressure port	G 1/4
Max. wear of each brake pad		6 mm	Oil bleed	G 1/4
Nominal coefficient of friction 2)		μ = 0.4	Min. diameter of brake disk ØD$_A$	800 mm
Total brake piston surface - complete brake		254 cm²	Operating temperature	-20 °C to +50 °C
Volume with 1 mm stroke - complete brake		25.4 cm³		

1) Dimensions and weight depending on thickness of brake disk.
2) The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Braking torque [Nm] with brake disk Ø [mm]			
Brake disk Ø [mm]	800	1500	2000
Braking torque [Nm]	56500	113300	153900

Calculation of braking force/braking torque

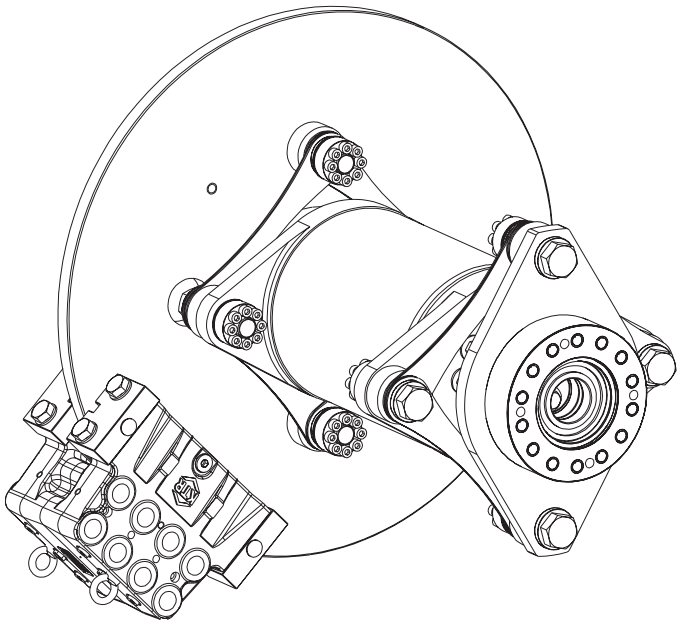
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	M-D	B	-	30
KTR brake	Size of brake	Variant		Thickness of brake disk

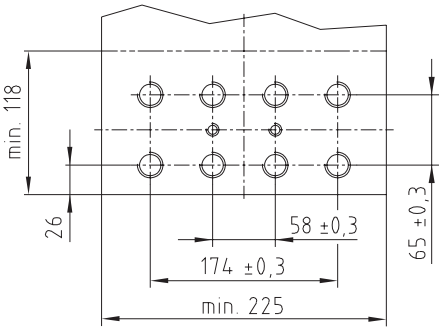


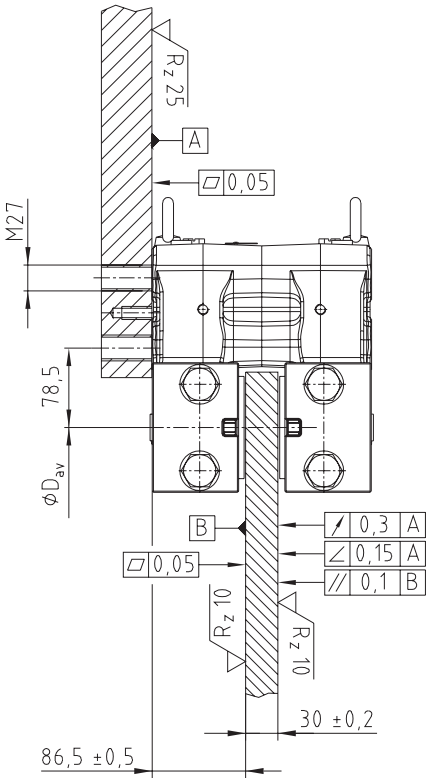
Calculation of brake disk

$D_{C\ max.} = D_A - 235$

$D_{av} = D_A - 104$

Connection dimensions of brake



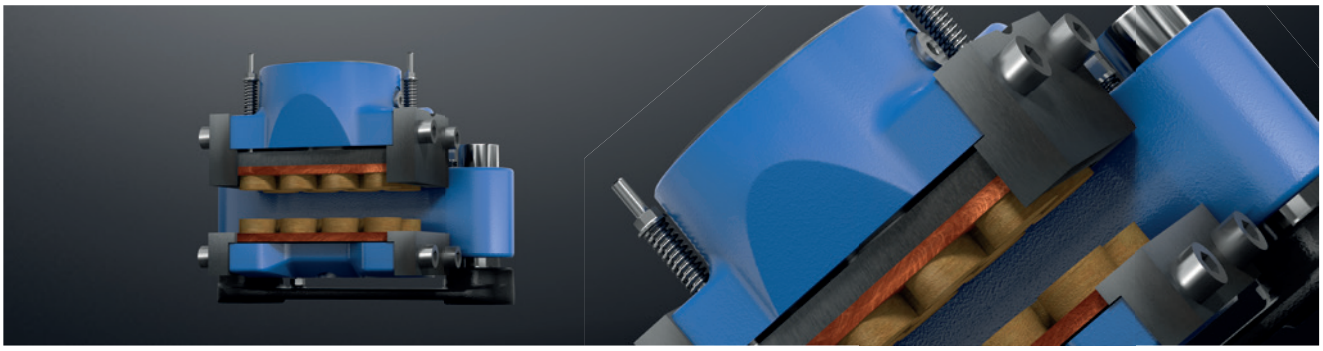


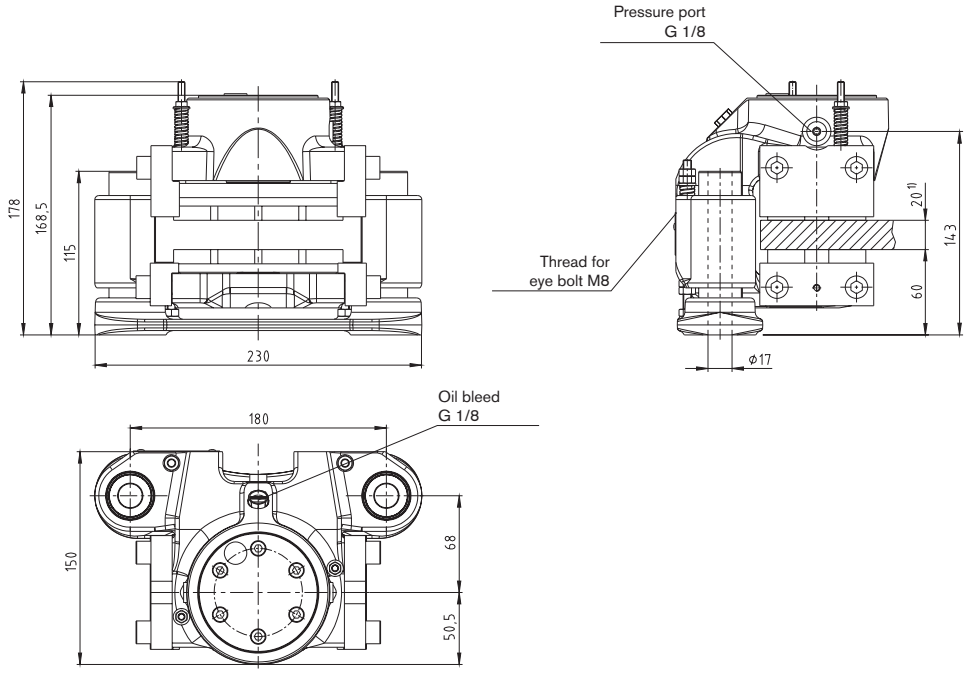
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® XS-A-F
Active floating caliper brakes

Hydraulic brake system





KTR-STOP® XS-A-F			
Total weight	Approx. 18 kg [1]	Max. clamping force	16.5 kN
Width of brake pad	70 mm	Max. operating pressure	105 bar
Surface of each brake pad organic	8,000 mm²	Thickness of brake disk	10 mm - 30 mm
powder metal	5,800 mm²	Pressure port	G 1/8
Max. wear of each brake pad	5 mm	Oil bleed	G 1/8
Nominal coefficient of friction [2]	μ = 0.4	Floating range on axles - towards mounting surface	5 mm
Total brake piston surface - complete brake	15.9 cm²	Floating range on axles - away from mounting surface	5 mm
Volume with 1 mm stroke - complete brake	1.59 cm³	Min. diameter of brake disk ØD$_A$	300 mm
		Operating temperature	-20 °C to +50 °C

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Braking torque [Nm] with brake disk Ø [mm]			
Brake disk Ø [mm]	315	560	800
Braking torque [Nm]	1510	3120	4710

Calculation of braking force/braking torque

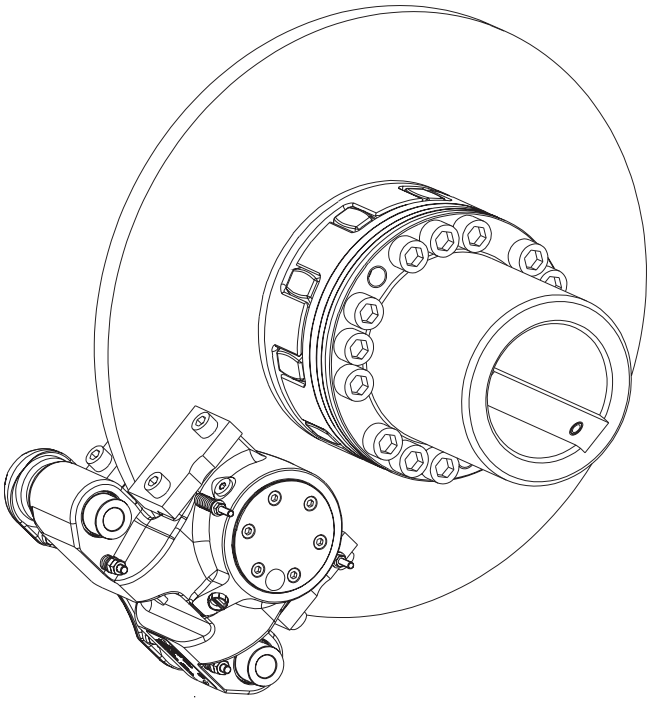
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	XS	-	A	-	F	B	-	30
KTR brake	Size of brake		Active		Floater	Variant		Thickness of brake disk

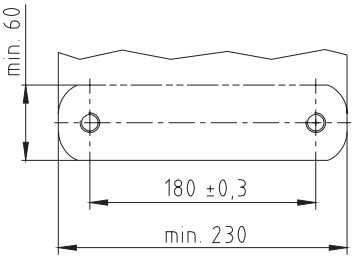


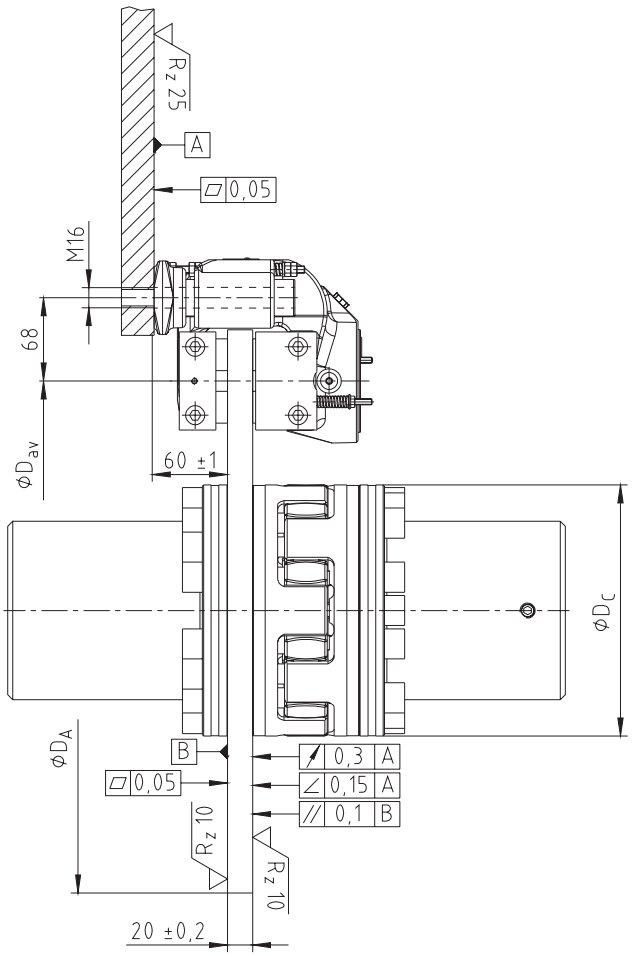
Calculation of brake disk

$D_{C\ max.} = D_A - 195$

$D_{av} = D_A - 86$

Connection dimensions of brake



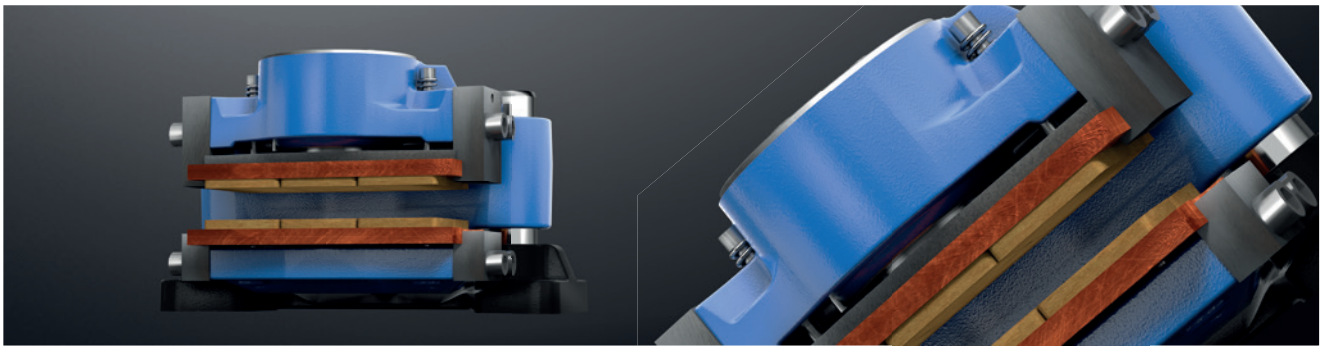


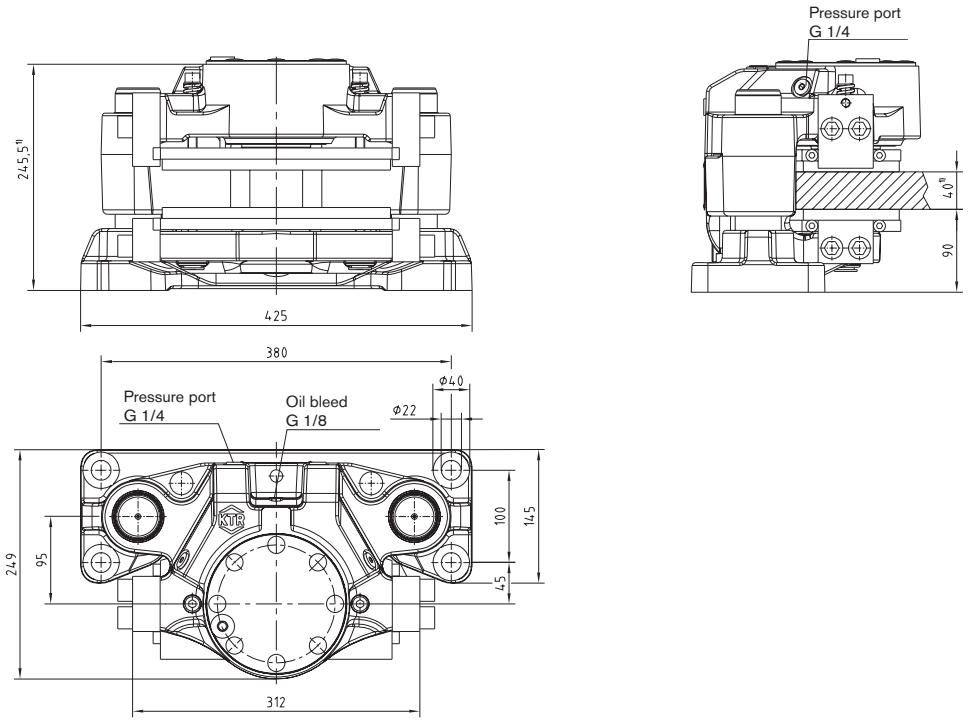
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

KTR-STOP® S-A-F
Active floating caliper brakes

Hydraulic brake system





KTR-STOP® S-A-F			
Total weight	Approx. 76 kg [1]	Max. clamping force	55 kN
Width of brake pad	125 mm	Max. operating pressure	125 bar
Surface of each brake pad organic	28,700 mm²	Thickness of brake disk	20 mm - 40 mm
powder metal	26,800 mm²	Pressure port	G 1/4
Max. wear of each brake pad	6 mm	Oil bleed	G 1/8
Nominal coefficient of friction [2]	μ = 0.4	Floating range on axles - towards mounting surface	5 mm
Total brake piston surface - complete brake	44.2 cm²	Floating range on axles - away from mounting surface	10 mm
Volume with 1 mm stroke - complete brake	4.42 cm³	Min. diameter of brake disk ØD$_A$	500 mm
		Operating temperature	-20 °C to +50 °C

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Braking torque [Nm] with brake disk Ø [mm]			
Brake disk Ø [mm]	500	710	1000
Braking torque [Nm]	8100	12700	19100

Calculation of braking force/braking torque

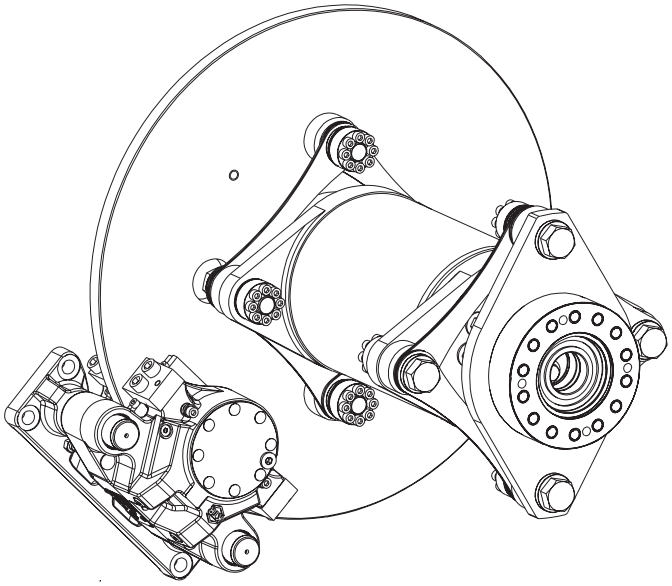
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

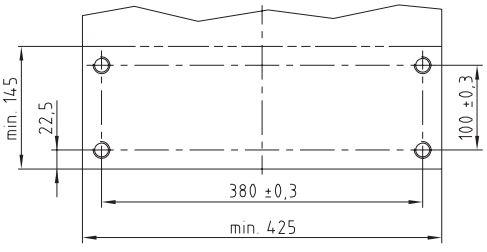
KTR-STOP®	S	-	A	-	F	B	-	30
KTR brake	Size of brake		Active		Floater	Variant		Thickness of brake disk

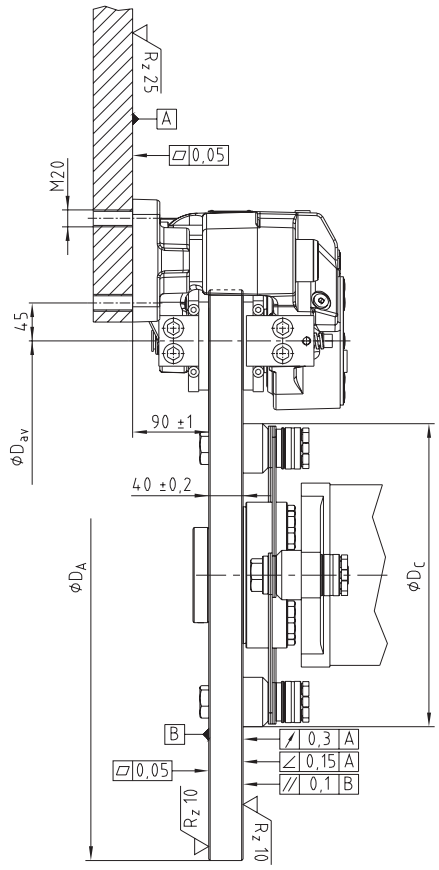


Calculation of brake disk

up to $ØD_A$ = 1000 mm	from $ØD_A$ = 1000 mm to $ØD_A$ = 1800 mm	from $ØD_A$ = 1800 mm
$D_{C\ max.} = D_A - 305$	$D_{C\ max.} = D_A - 295$	$D_{C\ max.} = D_A - 285$
$D_{av} = D_A - 130$	$D_{av} = D_A - 120$	$D_{av} = D_A - 110$

Connection dimensions of brake



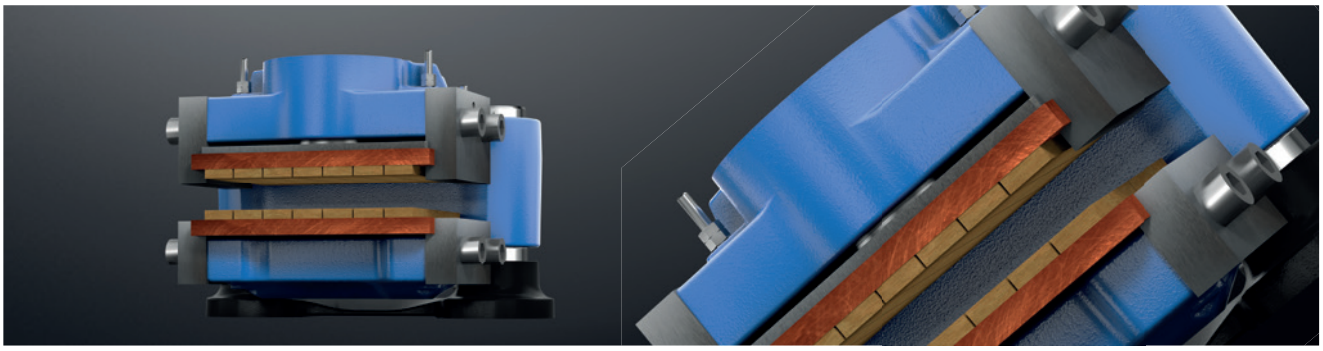


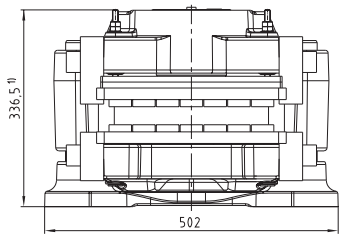
Optional

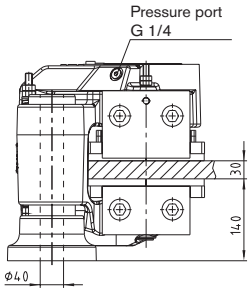
- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

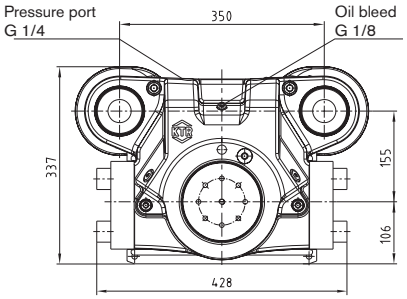
KTR-STOP® M-A-F
Active floating caliper brakes

Hydraulic brake system









KTR-STOP® M-A-F			
Total weight	Approx. 203 kg [1]	Max. clamping force	130 kN
Width of brake pad	200 mm	Max. operating pressure	115 bar
Surface of each brake pad organic	57,900 mm²	Thickness of brake disk	25 mm - 50 mm
powder metal	53,500 mm²	Pressure port	G 1/4
Max. wear of each brake pad	8 mm	Oil bleed	G 1/8
Nominal coefficient of friction [2]	μ = 0.4	Floating range on axles - towards mounting surface	5 mm
Total brake piston surface - complete brake	113 cm²	Floating range on axles - away from mounting surface	10 mm
Volume with 1 mm stroke - complete brake	11.3 cm³	Min. diameter of brake disk ØD$_A$	800 mm
		Operating temperature	-20 °C to +50 °C

[1] Dimensions and weight depending on thickness of brake disk.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Braking torque [Nm] with brake disk Ø [mm]			
Brake disk Ø [mm]	800	1500	2000
Braking torque [Nm]	31200	67600	93600

Calculation of braking force/braking torque

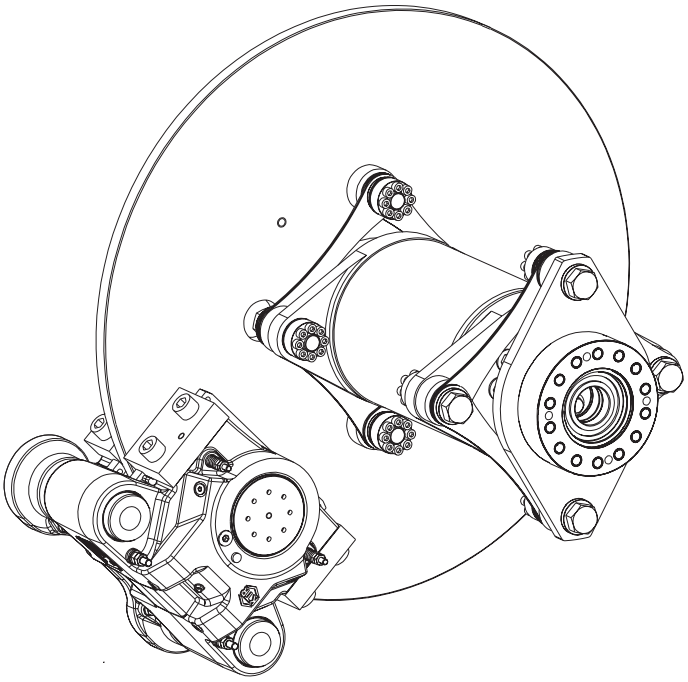
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

KTR-STOP®	M	-	A	-	F	B	-	40
KTR brake	Size of brake		Active		Floater	Variant		Thickness of brake disk

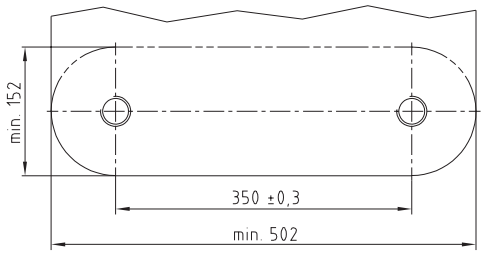


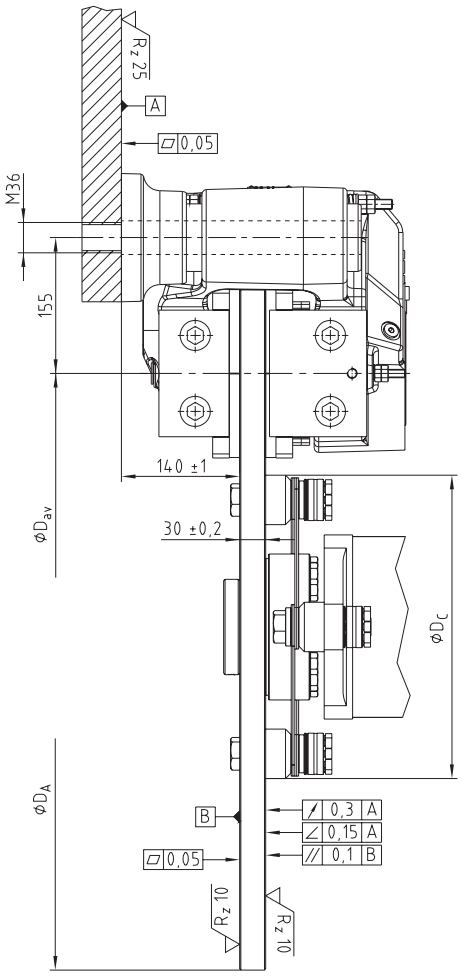
Calculation of brake disk

$D_{C\ max.} = D_A - 420$

$D_{av} = D_A - 200$

Connection dimensions of brake



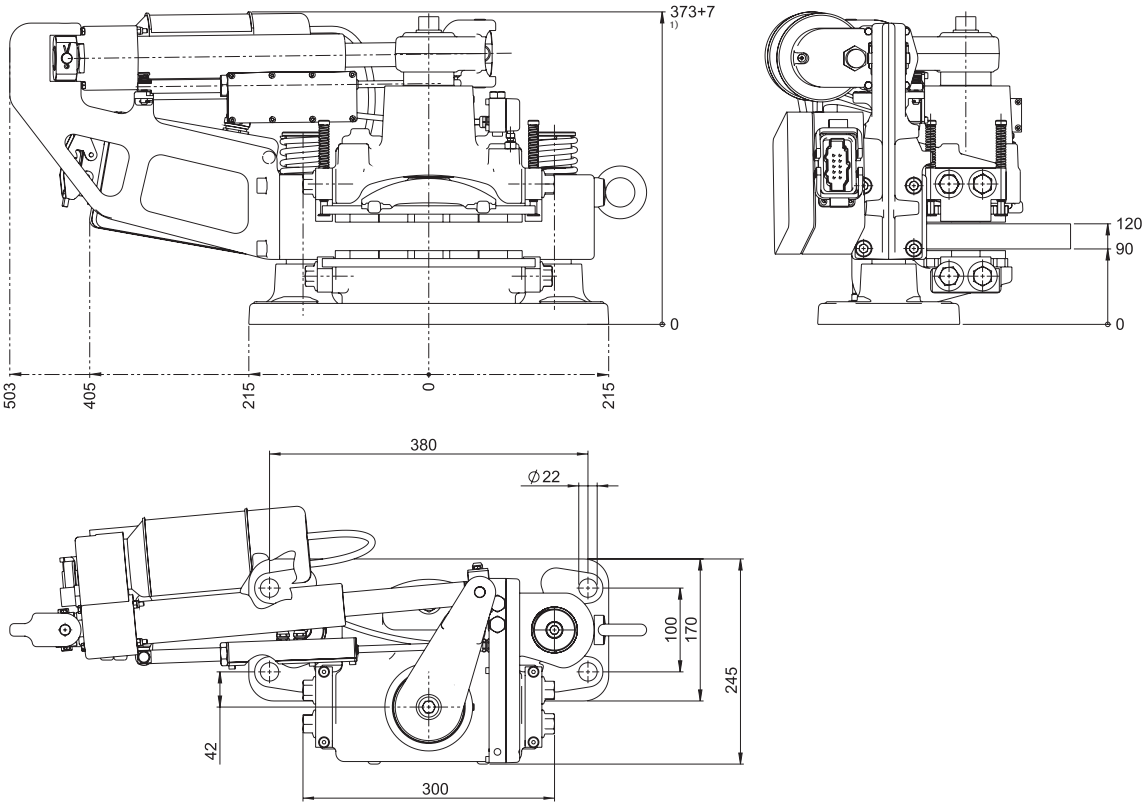


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP S-A-xx-F Lever
Active floating caliper brakes

Electromechanical brake system



EMB-STOP S-A-xx-F Lever	
Total weight	90 kg
Thickness of brake disk	25 mm, 30 mm, 35 mm
Wear of pad on each side (max.)	4 mm
Coefficient of friction of pad, nominal value [2]	μ = 0.4
Clamping force, min.	30 kN
Clamping force, max.	60 kN
Operation temperature range	-30 °C to +50 °C
Motor power	300 W
Motor voltage	230 VAC, 50 Hz
Voltage of electric signals	230 VAC/24 VDC

[1] Tolerances depending on clearance for release.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

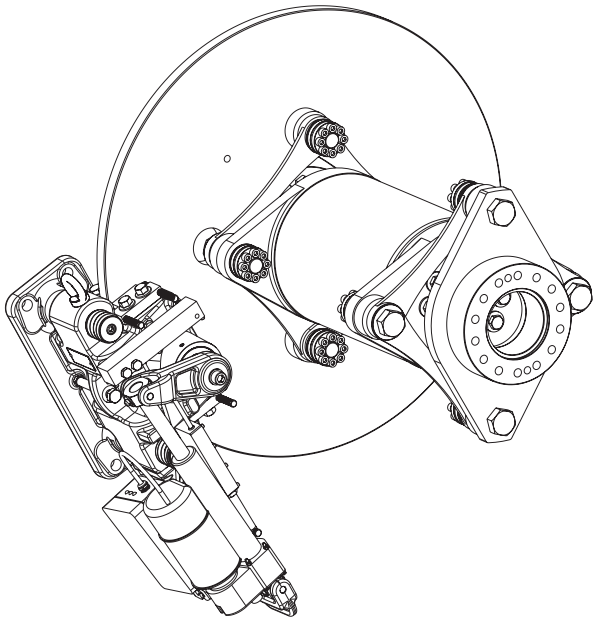
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

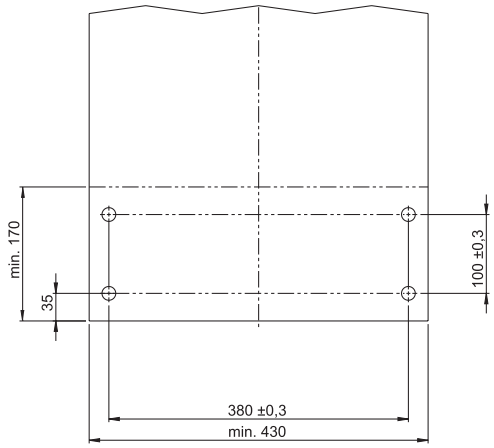
EMB-STOP	S	-	A	-	50	-	F	L	-	30
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk

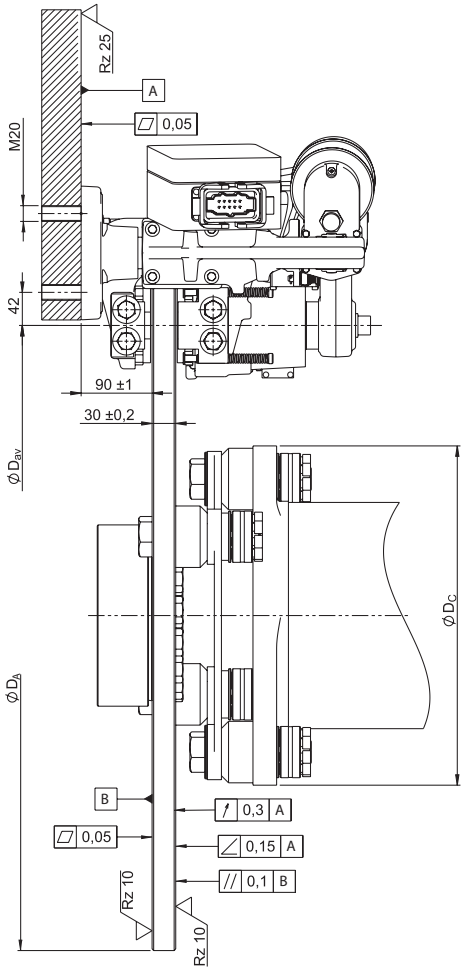


Calculation of brake disk

$ØD_A$ = 500 ... 1000 mm	$ØD_A$ = 1000 ... 1800 mm	$ØD_A$ = 1800 ... 3000 mm
$D_{C\ max.} = D_A - 130$	$D_{C\ max.} = D_A - 110$	$D_{C\ max.} = D_A - 105$

Connection dimensions of brake



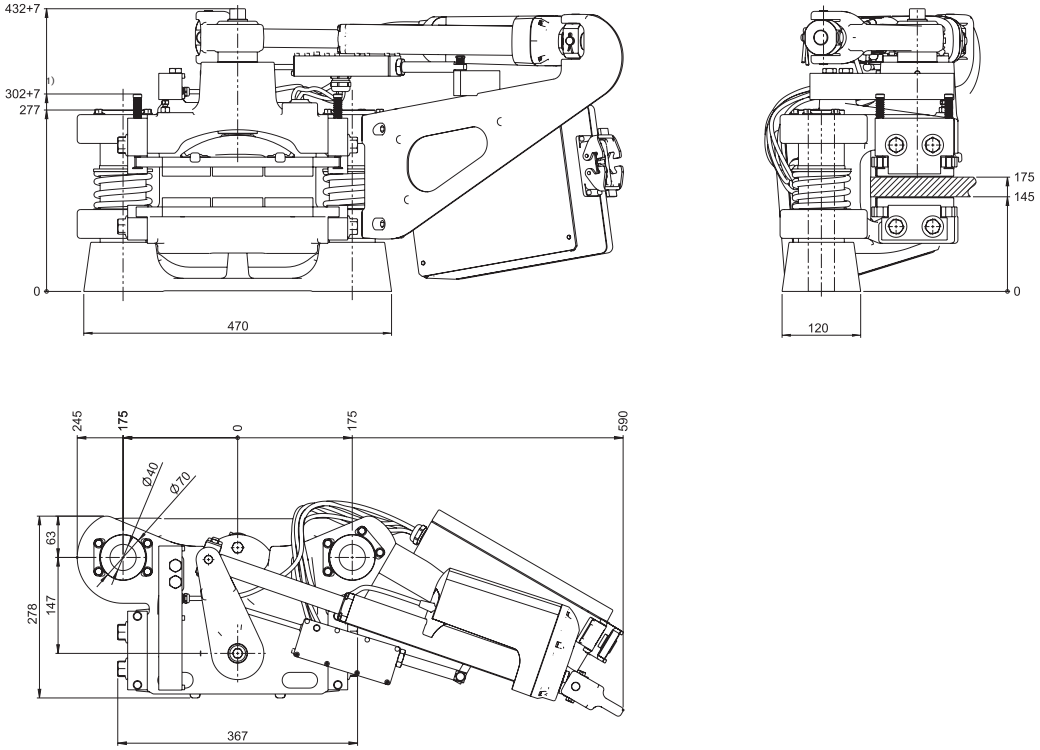


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP M-A-xx-F Lever
Active floating caliper brakes

Electromechanical brake system



EMB-STOP M-A-xx-F Lever	
Total weight	115 kg
Thickness of brake disk	25 mm, 30 mm, 35 mm
Wear of pad on each side (max.)	4 mm
Coefficient of friction of pad, nominal value [2]	μ = 0.4
Clamping force, min.	80 kN
Clamping force, max.	125 kN
Operation temperature range	-30 °C to +50 °C
Motor power	300 W
Motor voltage	24 VDC
Voltage of electric signals	230 VAC/24 VDC

[1] Tolerances depending on clearance for release.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

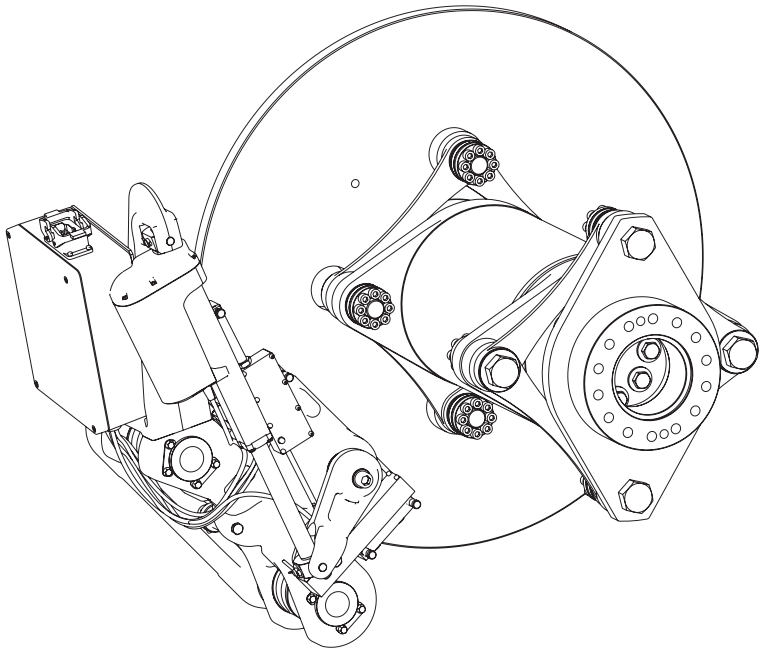
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

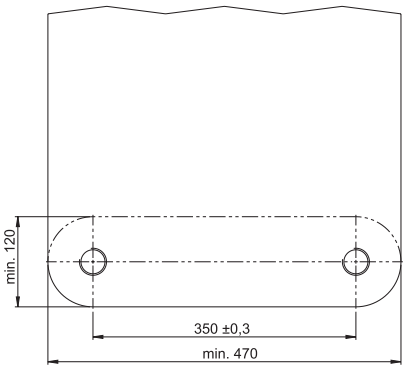
EMB-STOP	M	-	A	-	125	-	F	L	-	35
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk

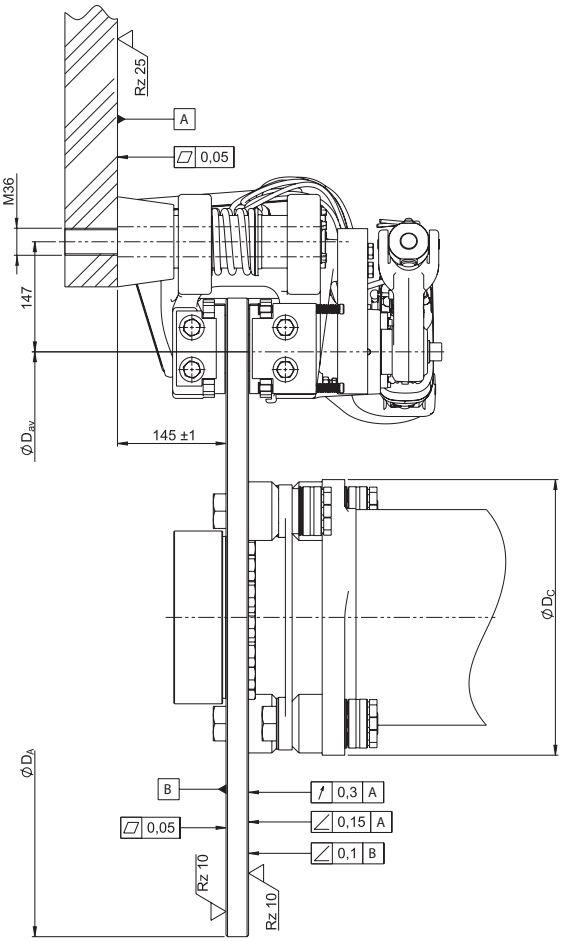


Calculation of brake disk
$\varnothing D_A \geq 800$ mm

$$D_{av} = D_A - 130$$

Connection dimensions of brake



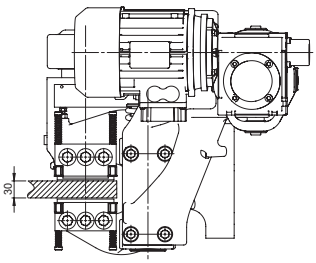


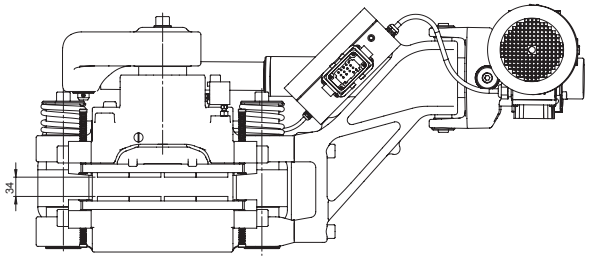
Optional

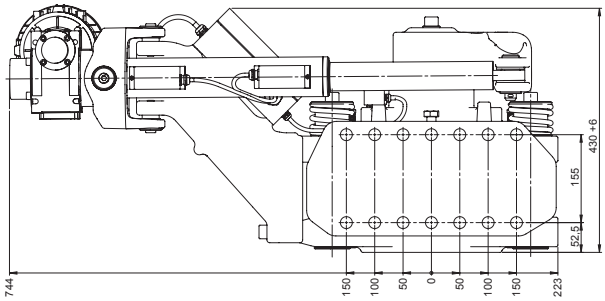
- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

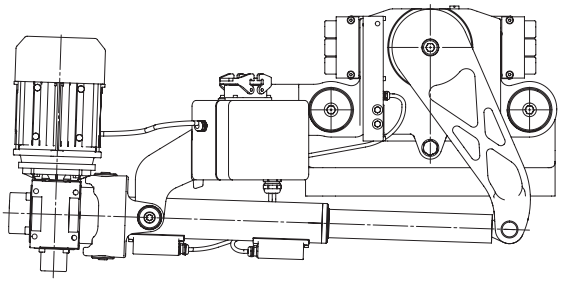
EMB-STOP L-A-xx-F Lever
Active floating caliper brakes

Electromechanical brake system









EMB-STOP L-A-xx-F Lever	
Total weight	280 kg
Thickness of brake disk	25 - 40 mm
Wear of pad on each side (max.)	5 mm
Coefficient of friction of pad, nominal value [2]	μ = 0.4
Clamping force, min.	125 kN
Clamping force, max.	380 kN
Operation temperature range	-30 °C to +50 °C
Motor power	1100 W
Motor voltage	400 VAC, 50 Hz
Voltage of electric signals	230 VAC/24 VDC

[1] Tolerances depending on clearance for release.
[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

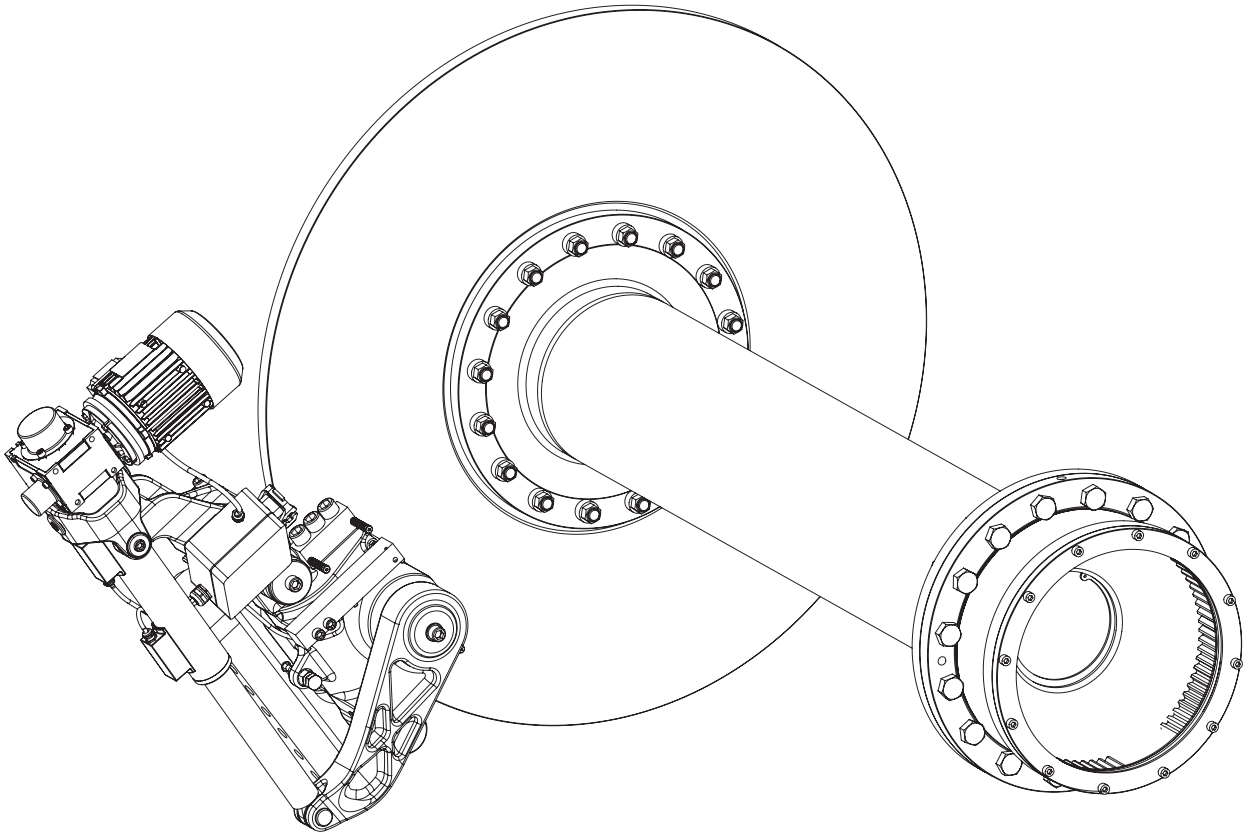
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

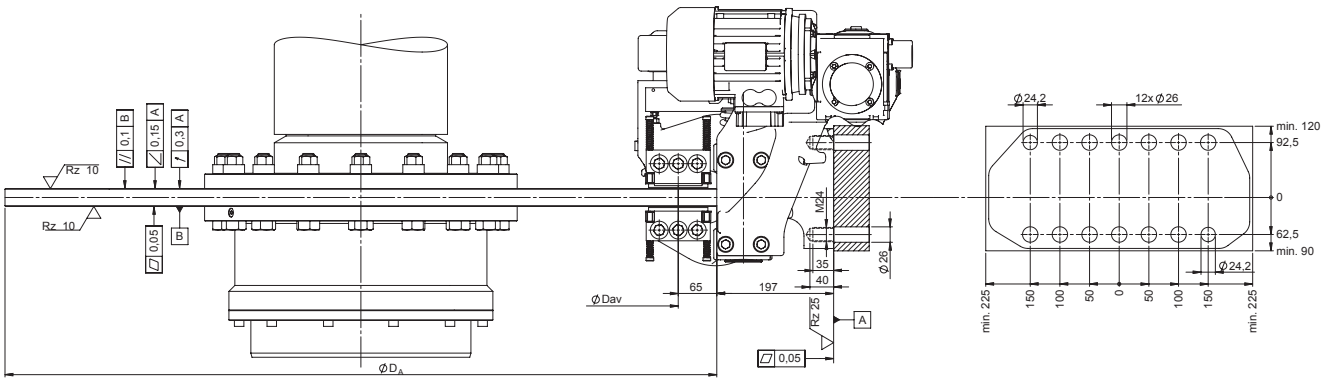
EMB-STOP	L	-	A	-	380	-	F	L	-	30
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk



Calculation of brake disk

$ØD_A \leq 1800$ mm	$ØD_A > 1800$ mm
$D_{av} = D_A - 130$	$D_{av} = D_A - 120$

Connection dimensions of brake

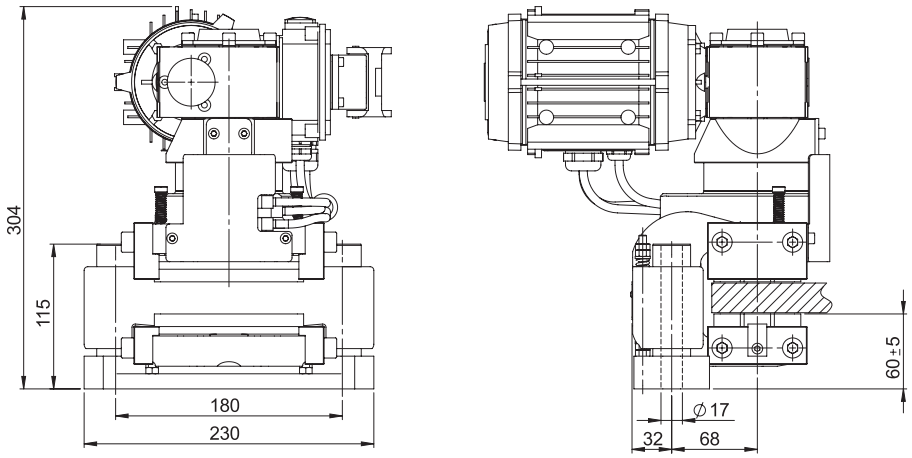


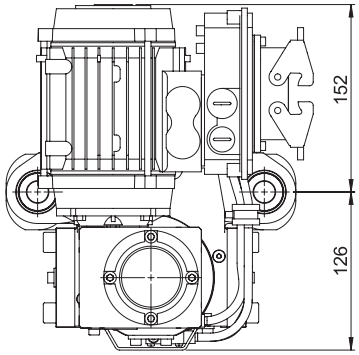
Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP XS-A-xx-F
Active floating caliper brakes

Electromechanical brake system





EMB-STOP XS-A-xx-F				
Total weight		Approx. 25 kg	Thickness of brake disk	20 mm, 25 mm, 30 mm
Width of brake pad		70 mm	Operating voltage	400 VAC, 50 Hz
Surface of each brake pad	organic	8,000 mm²	Size of industrial connector	Han10B / HAN18EE (male)
	powder metal	5,800 mm²	Floating range on axles - towards mounting surface	5 mm
Wear of pad on each side (max.)		5 mm	Floating range on axles - away from mounting surface	5 mm
Coefficient of friction of pad, nominal value [1]		μ = 0.4	Min. diameter of brake disk ØDA	300 mm
Clamping force, max.		12 kN	Operating temperature	-20 °C to +50 °C

[1] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

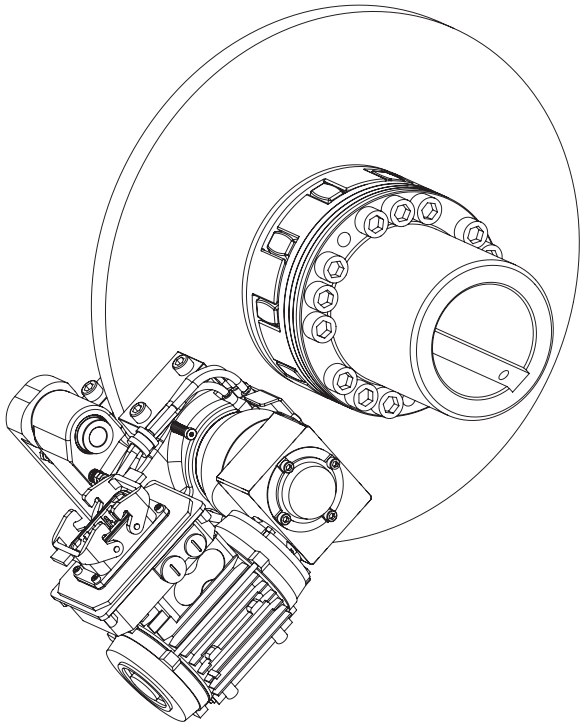
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

EMB-STOP	XS	-	A	-	12	-	F	B	-	30
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk

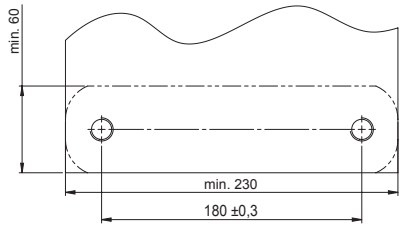


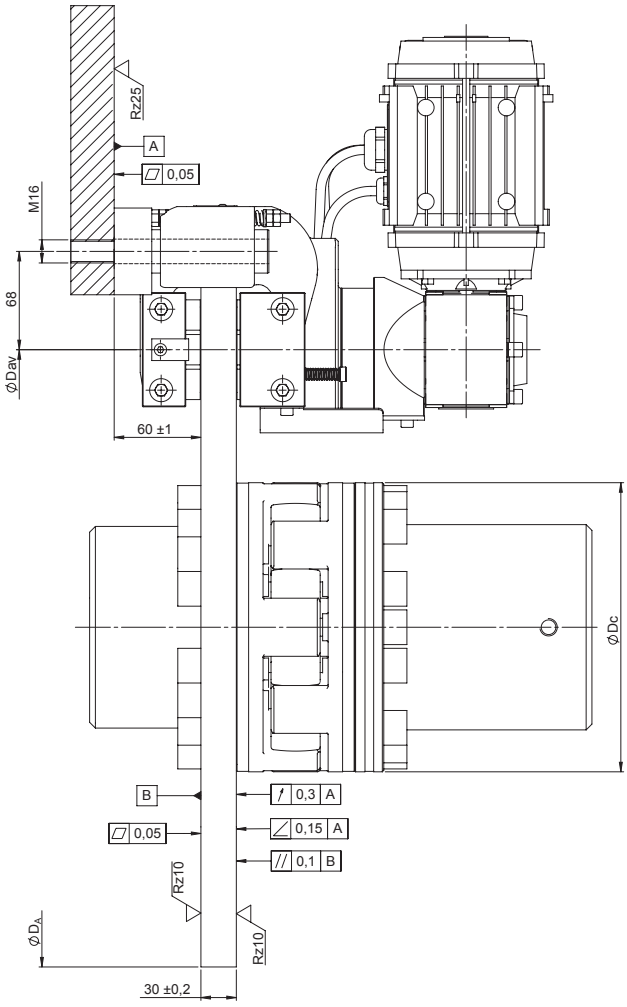
Calculation of brake disk

$D_{C\ max.} = D_A - 195$

$D_{av} = D_A - 86$

Connection dimensions of brake



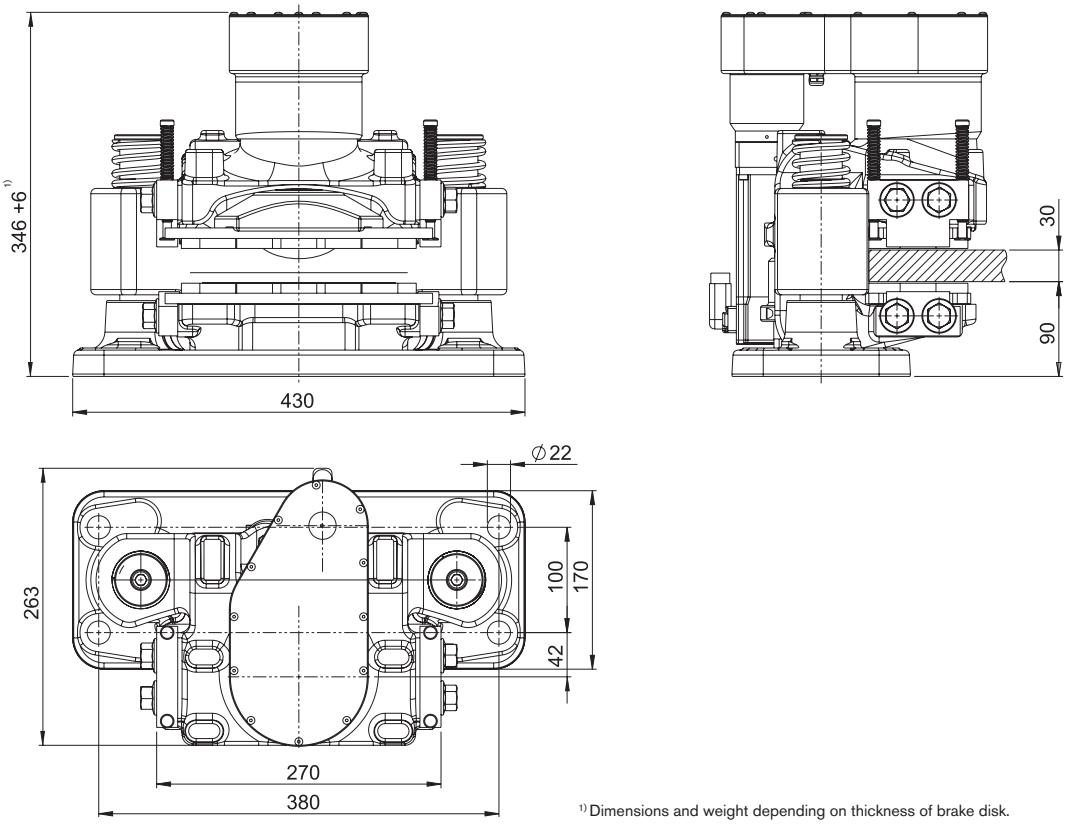


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP S-A-xx-F
Active floating caliper brakes

Electromechanical brake system



1) Dimensions and weight depending on thickness of brake disk.

EMB-STOP S-A-xx-F	
Total weight	90 kg
Thickness of brake disk	25 mm, 30 mm, 35 mm
Wear of pad on each side (max.)	4 mm
Coefficient of friction of pad, nominal value 2)	μ = 0.4
Clamping force, min.	30 kN
Clamping force, max.	60 kN
Operation temperature range	-30 °C to +50 °C
Motor power	250 W
Motor voltage	400 VAC, 50 Hz
Voltage of electric signals	230 VAC/24 VDC

2) The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

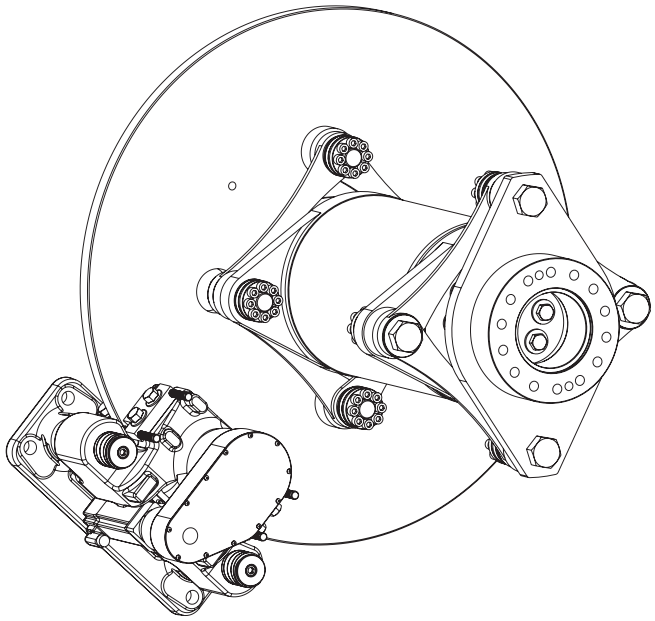
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

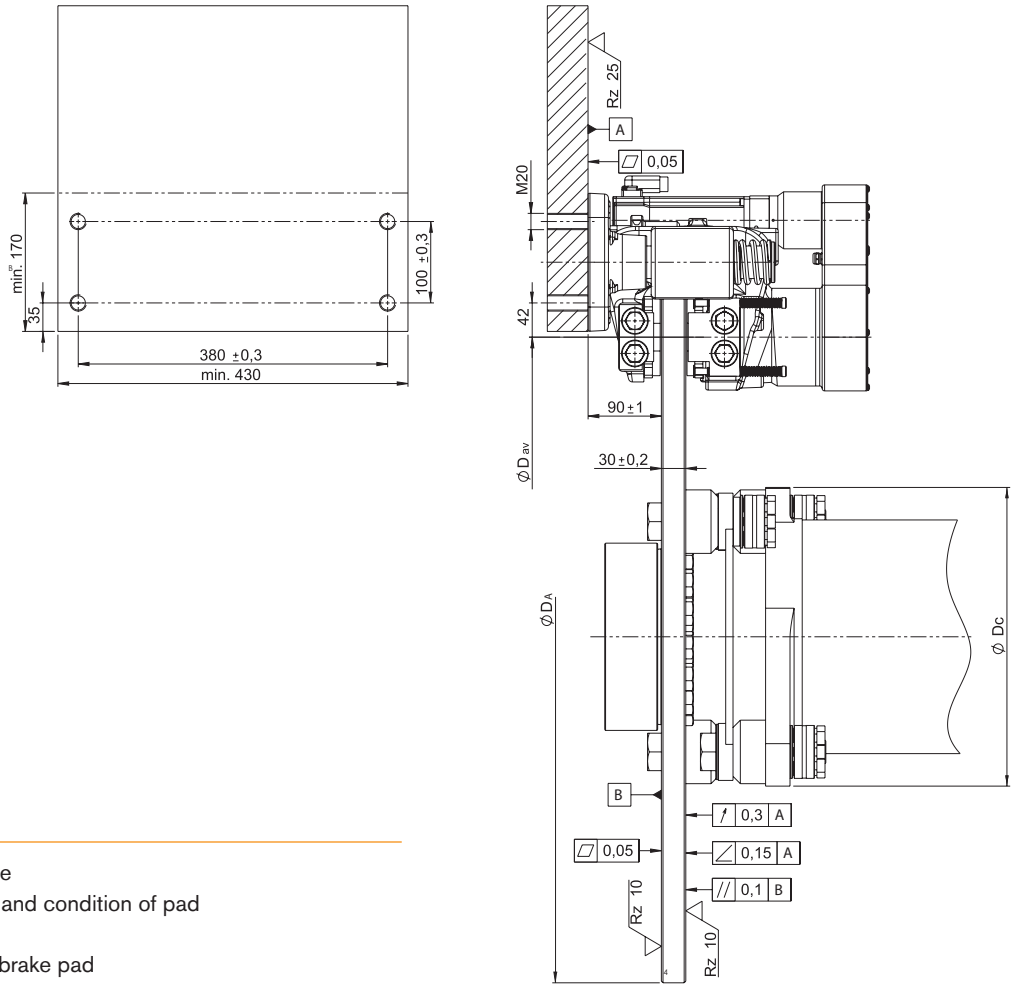
EMB-STOP	S	-	A	-	50	-	F	A	-	30
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk



Calculation of brake disk

ØD$_A$ = 500 ... 1000 mm	ØD$_A$ = 1000 ... 1800 mm	ØD$_A$ = 1800 mm
D$_{av}$ = D$_A$ - 130	D$_{av}$ = D$_A$ - 110	D$_{av}$ = D$_A$ - 105

Connection dimensions of brake

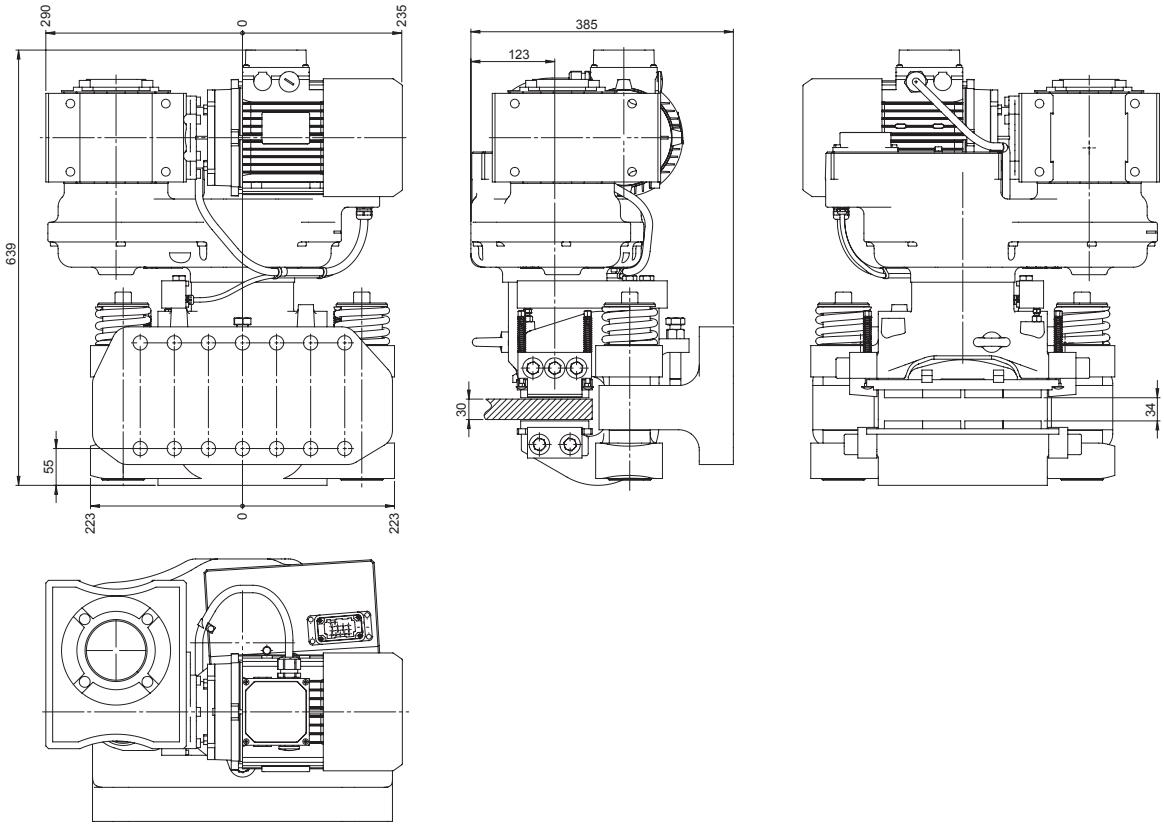


Optional

- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

EMB-STOP L-A-xx-F
Active floating caliper brakes

Electromechanical brake system



EMB-STOP L-A-xx-F	
Total weight	235 kg
Thickness of brake disk	25 - 40 mm
Wear of pad on each side (max.)	8 mm
Coefficient of friction of pad, nominal value [2)]	μ = 0.4
Clamping force, min.	125 kN
Clamping force, max.	375 kN
Operation temperature range	-30 °C to +50 °C
Motor power	1500 W
Motor voltage	400 VAC
Voltage of electric signals	230 VAC/24 VDC

[2)] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

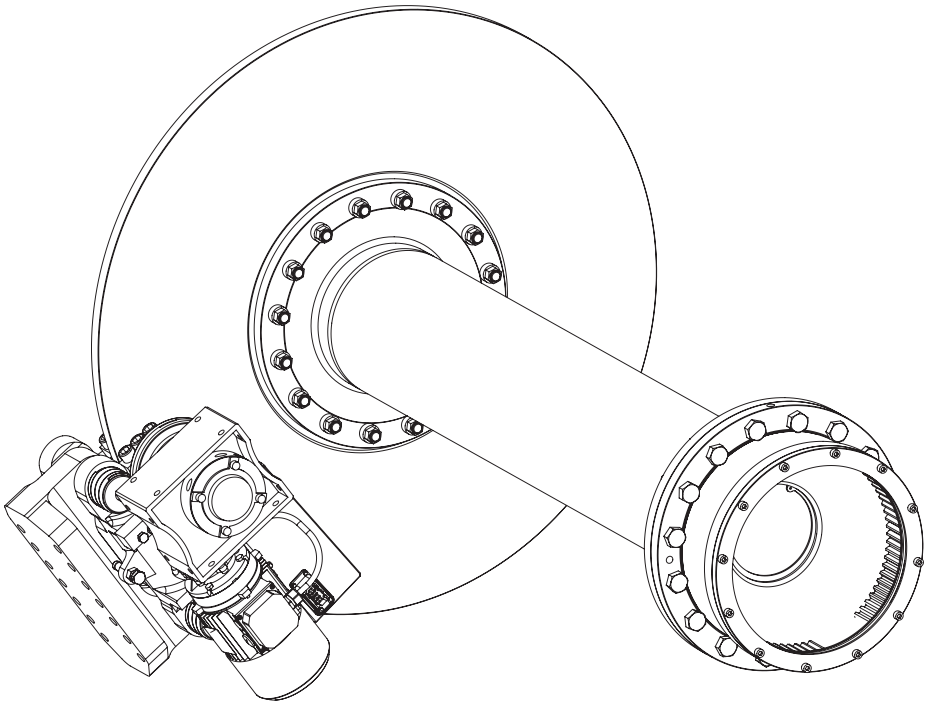
$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

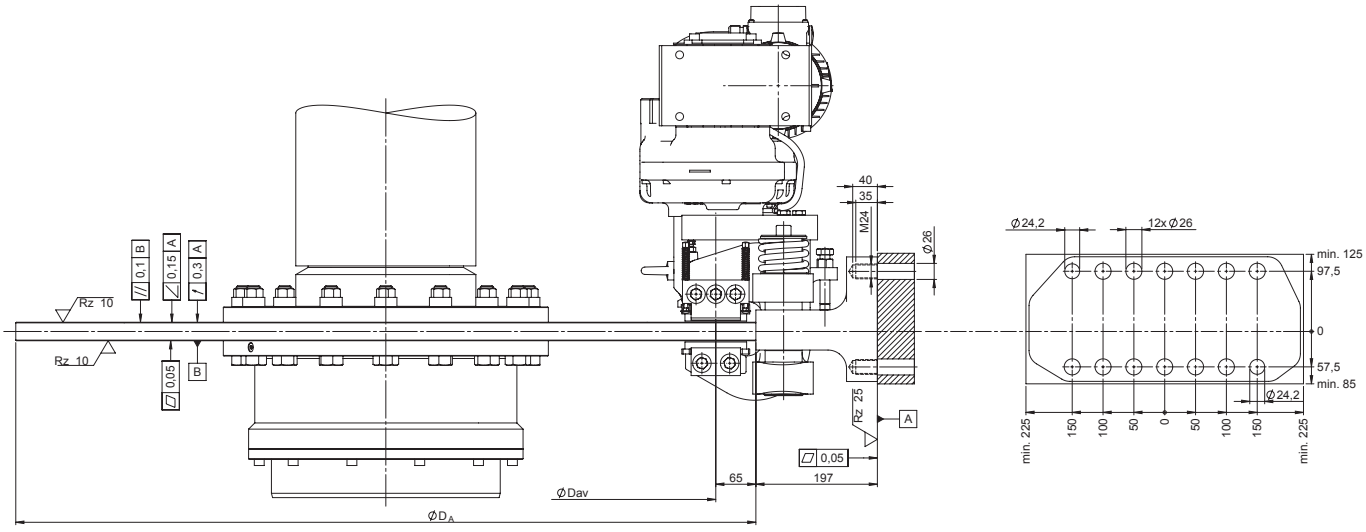
EMB-STOP	L	-	A	-	380	-	F	A	-	30
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk



Calculation of brake disk

$ØD_A \leq 1800$ mm	$ØD_A > 1800$ mm
$D_{av} = D_A - 130$	$D_{av} = D_A - 120$

Connection dimensions of brake

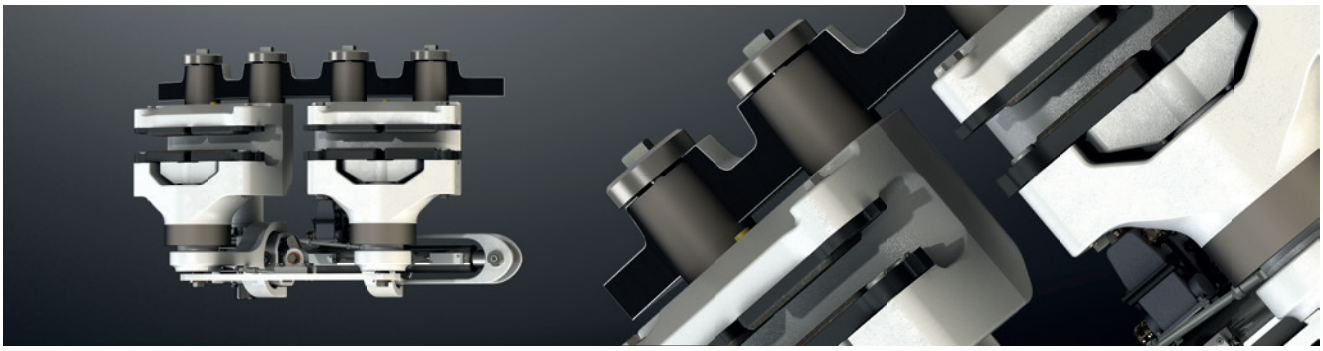


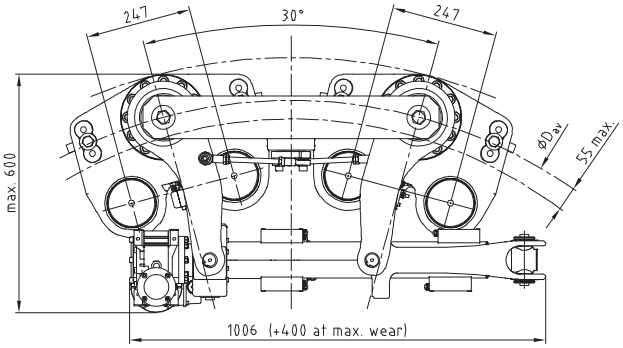
Optional

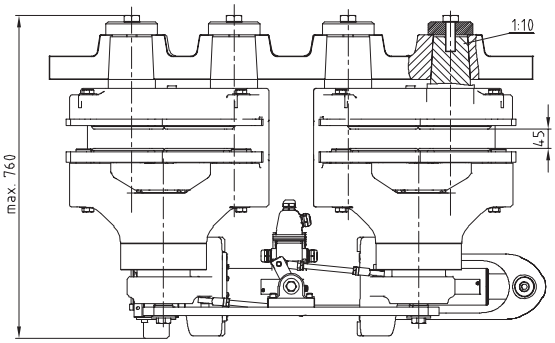
- Various colours available
- Sensor indicating wear and condition of pad
- Temperature sensor
- Alternative materials of brake pad

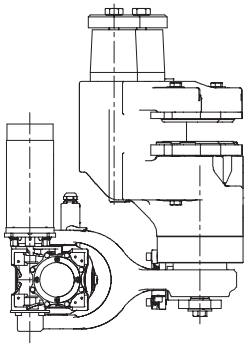
EMB-STOP 2L-A-xx-F Lever
Active floating caliper brakes

Electromechanical brake system









Mounting proposal: other mounting options on request.

EMB-STOP 2L-A-xx-F Lever	
Total weight	600 kg
Thickness of brake disk	30 - 45 mm
Wear of pad on each side (max.)	3 mm
Coefficient of friction of pad, nominal value [1]	μ = 0.4
Clamping force, min.	500 kN (=2×250 kN)
Clamping force, max.	700 kN (=2×350 kN)
Operation temperature range	-30 °C to +50°C
Motor power	3000 W
Motor voltage [2]	24 VDC
Voltage of electric signals	230 VAC/24 VDC

[1] The friction coefficient each depends on the application or material of the brake pad; please consult with KTR.
[2] Other supply voltages on request

Calculation of braking force/braking torque

$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

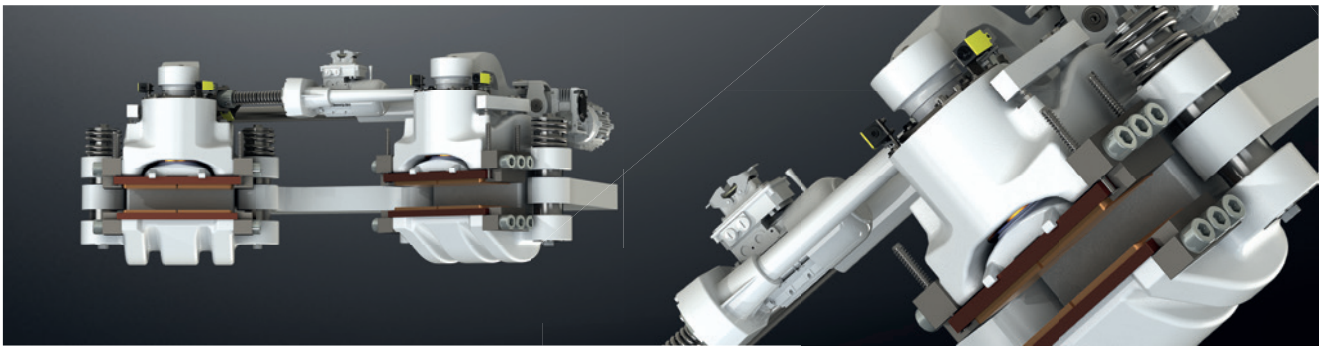
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

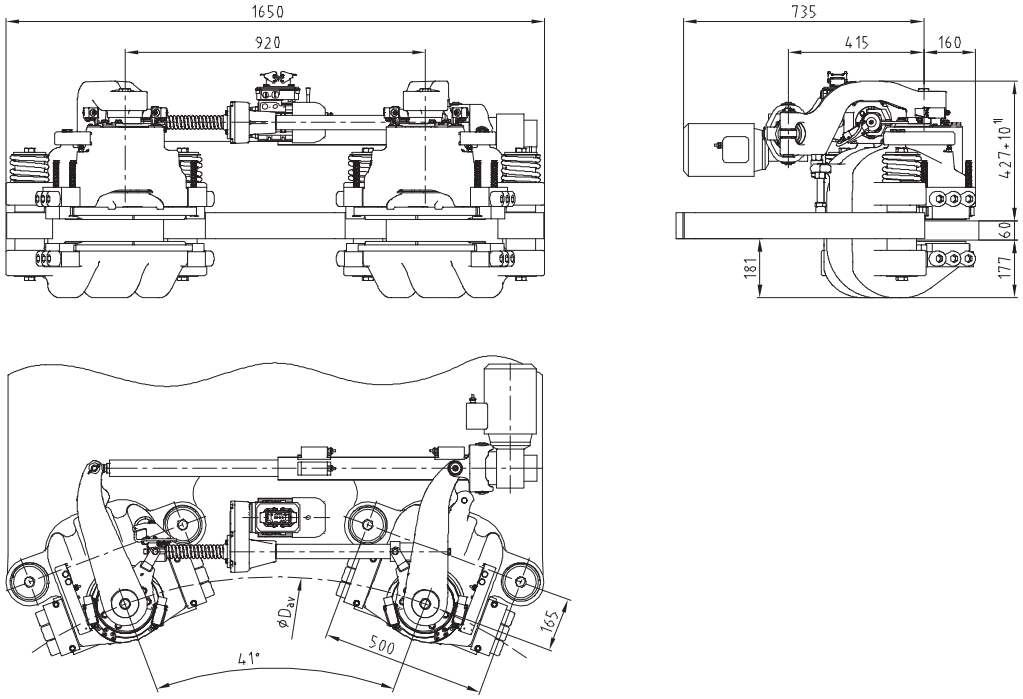
Ordering example:

EMB-STOP	2L	-	A	-	700	-	F	L	-	45
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)	Variant		Thickness of brake disk

EMB-STOP 2XL-A-xx-F Lever
Active floating caliper brakes

Electromechanical brake system





[1] Tolerances depending on clearance for release.
Mounting proposal: other mounting options on request.

EMB-STOP 2XL-A-xx-F Lever	
Total weight	950 kg
Thickness of brake disk	50 - 60 mm
Wear of pad on each side (max.)	4 mm
Clearance for release on each side (max.)	4 mm
Coefficient of friction of pad, nominal value [2]	μ = 0.4
Clamping force, min.	800 kN (=2×400 kN)
Clamping force, max.	1600 kN (=2×800 kN)
Operation temperature range	-20 °C to +50°C
Connected load	3000 W
Motor voltage	400 VAC @ 50 Hz
Voltage of electric signals	24 VDC

[2] The coefficient of friction each depends on the application or material of the brake pad; please consult with KTR.

Calculation of braking force/braking torque

$$F_b = F_c \cdot 2 \cdot \mu$$

$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Ordering example:

EMB-STOP	2XL	-	A	-	1600	-	F		L	-	60
EMB brake	Size of brake		Active		Clamping force		Floating caliper („Floater“)		Variant		Thickness of brake disk

IntelliRamp®
Electronic control system

Description of product

IntelliRamp® is an electronic control system allowing for accurate braking processes via program control. Being combined with IntelliRamp® our brakes are therefore suitable for the use in sophisticated applications:

- Ramp-supported braking process
  - Continuous deceleration operation
  - Continuous time operation
  - Continuous speed operation
- Overspeed monitoring
- Reverse lock
- Joystick control
- Online remote operation

Operation and structure

The IntelliRamp® system controls the clamping force of the brake and the resulting braking force infinitely. This allows to control both hydraulic and electromechanical brakes sensitively complying with the operating instructions. The heart of the system is the control computer with its touchscreeen. It takes over all operations of calculation and monitoring that are necessary for controlling the brake systems. In addition IntelliRamp® controls and monitors the function of the power pack with a hydraulic brake system, too. For that purpose characteristic figures like oil level, oil temperature and hydraulic pressure are recorded by the system. The overall system, among others, has an uninterruptible power supply to allow for performing a full braking cycle in case of power failure. This will allow you to keep the full control of your brake system even with critical conditions of the machine while preventing damages from your machine.

Operation

The control system is operated via touch screen with menu navigation. Other relays are not necessary which increases the availability and reliability of IntelliRamp® considerably. It goes without saying that many standard bus systems (e. g. Profibus, EtherCAT, etc.) are available as options for your communication as well.

Ramp-supported braking process

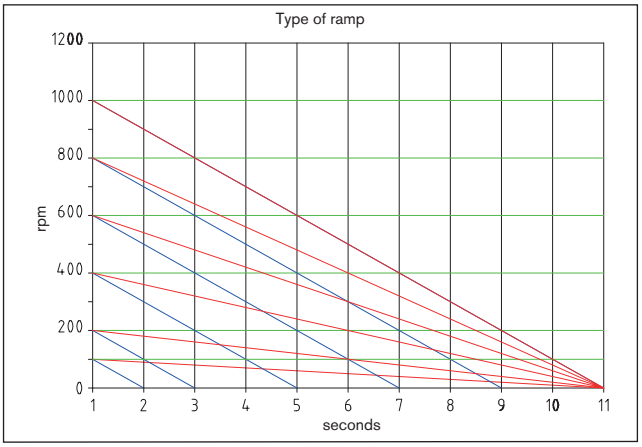
The ramp-supported braking process is activated by a signal safe from cable break. The process is performed via a closed control circuit covering speed versus time. Since a proportional control is not concerned here, the system is safe from power breakdown, i. e. it will work even if the power supply fails. The ramp is defined by a rated speed and a braking time considering this speed.

Since a speed which is almost zero cannot be measured accurately any longer, a braking process exists increasing the braking power to achieve the full figure from a certain speed within a period to be defined.

For the ramp a tolerance range is defined which a control is performed in. Falling below this range the brake unlocks, exceeding this range the brake locks fully. The tolerance range can be defined flexibly. The more precise the definition, the more accurate is the control, but at the same time the more nervous is the reaction.

In order to avoid impacts in the beginning of the braking process, the control automatically calculates the braking pressure that is theoretically necessary to reach the ramp required. This prevents too fierce braking.
IntelliRamp® allows to use three brake ramps which can each be programmed individually and which can be started irrespective of each other.

Scheme of the ramp-supported braking process



— Continuous deceleration:
With a higher speed the braking cycle takes longer, with a low speed it takes shorter.
— Continuous time operation
The same time is always adhered to. Thus, the brake is more engaged if the speed is higher.
— Continuous speed control:
An option to keep the device at a constant speed via the brake only.

Function

Overspeed monitoring:
Triggering the excessive speed reacts flexibly with defined excessive speed barriers. Two values can be defined by which either a message is given to the PLC, a brake ramp is triggered or an emergency stop is activated immediately without performing any control of this braking process. The excessive speed control can be switched on and off.

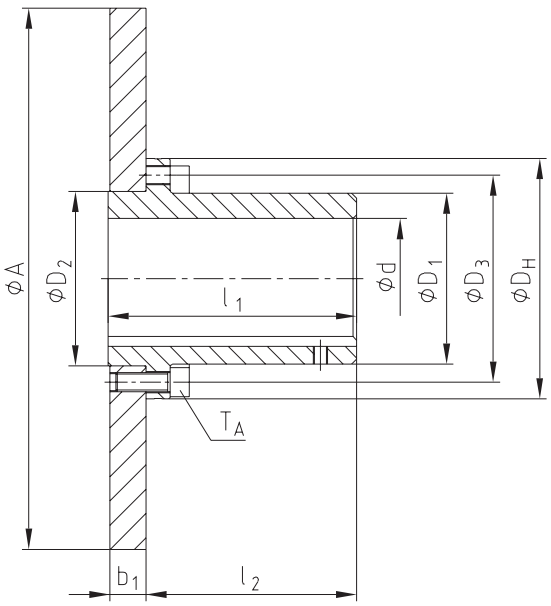
Reverse lock:
It allows for controlling the speed. In case of an unauthorised rotational direction of the system a braking process is activated or the starting of the machine is prevented. A definition of the number of starts preventing a reset if the number is exceeded is to prevent the device from reversing in case of a fracture of the drive.

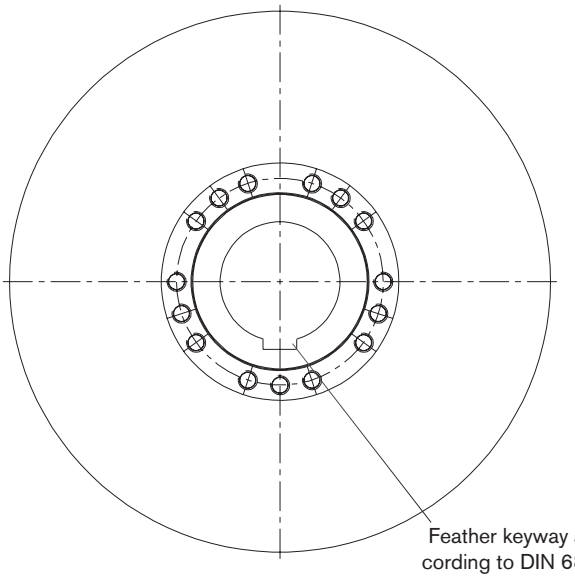
Joystick control:
This is an option to use the brake, as an example, like a car brake. The more the joystick travels, the more the brake engages.

Online remote operation:
The online remote operation allows both to call the status of the control via a network and to interfere. There is the option to program the control from a place far away.

KTR-STOP® NBS
Hubs with brake disks

Description of product





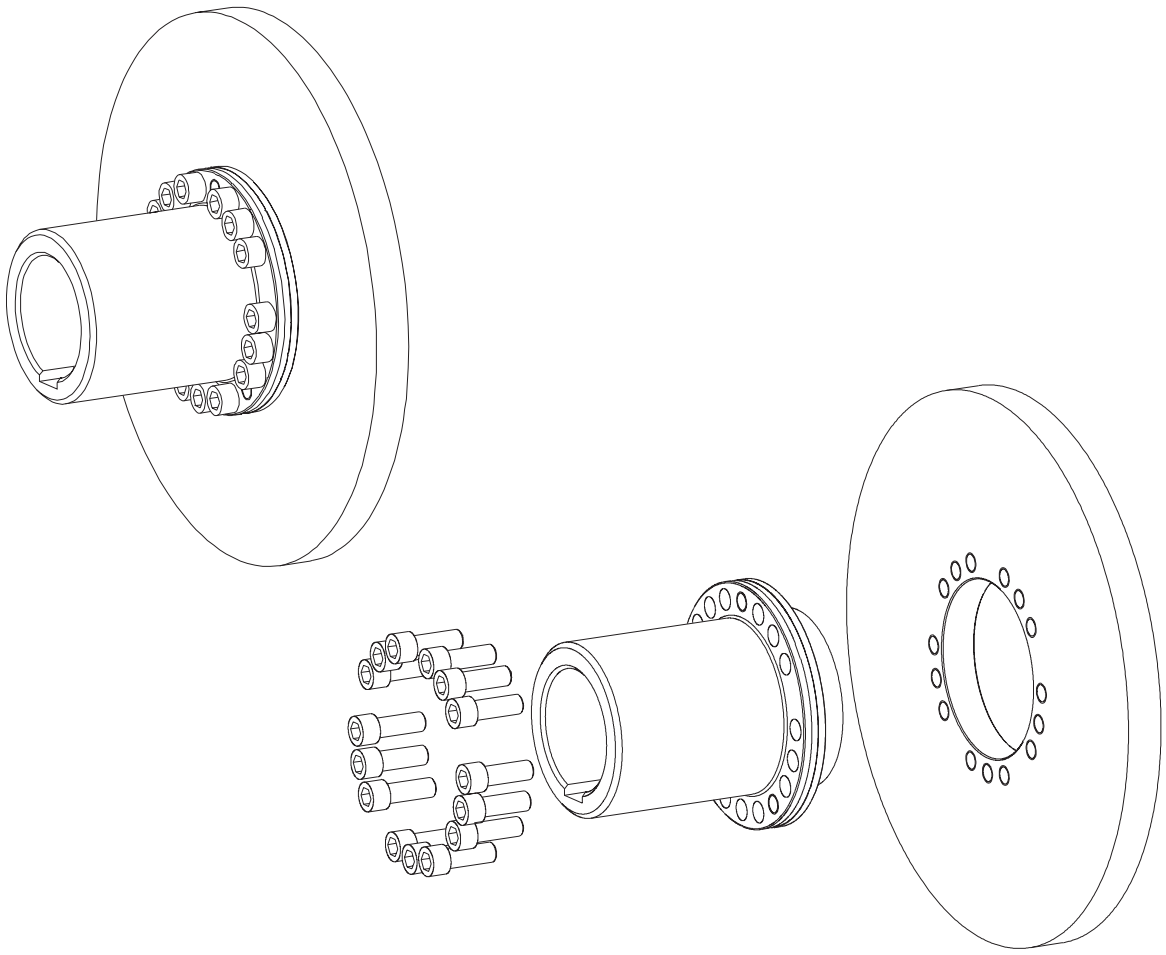
Feather keyway according to DIN 6885 sheet 1

KTR-STOP® NBS													
Size	Dimensions [mm]								Cap screws DIN EN ISO 4762				Max. braking torque [1] [Nm]
	Finish bore d		D_H	D_1	D_2	D_3	l_1	l_2	Thread M	z = number	Pitch	Tightening torque T_A [Nm]	
	Min.	Max.											
65	22	65	135	94	96	116	166	135	M10	12	16x22.5°	67	3000
75	30	75	160	108	112	136	166.5	135	M12	15		115	6700
90	40	100	200	142	145	172	206.5	175	M16	15		290	16000
100	46	110	225	158	165	195	206.5	175	M16	15		290	18700
110	60	125	255	178	180	218	212	180	M20	15		560	32700
125	60	145	290	206	215	252	212	180	M20	15	20x18°	560	38100
140	60	165	320	235	245	282	252.5	220	M20	15		560	42700
								210 [2]				560	42700
160	80	190	370	270	280	325	252.5	220	M24	15		970	75200
								210 [2]				970	75200
180	85	220	420	315	330	375	252.5	210 [2]	M24	18	24x15°	970	10400

[1] Referring to screw connection of brake disk; the shaft-hub-connection has to be investigated separately by the customer.
[2] Dimensions with a width of brake disk b_1 of 40 mm.

Ordering example:

KTR-STOP® NBS 110	800x30	Ø100
Type/size	Brake disk ØAxb_1	Bore d

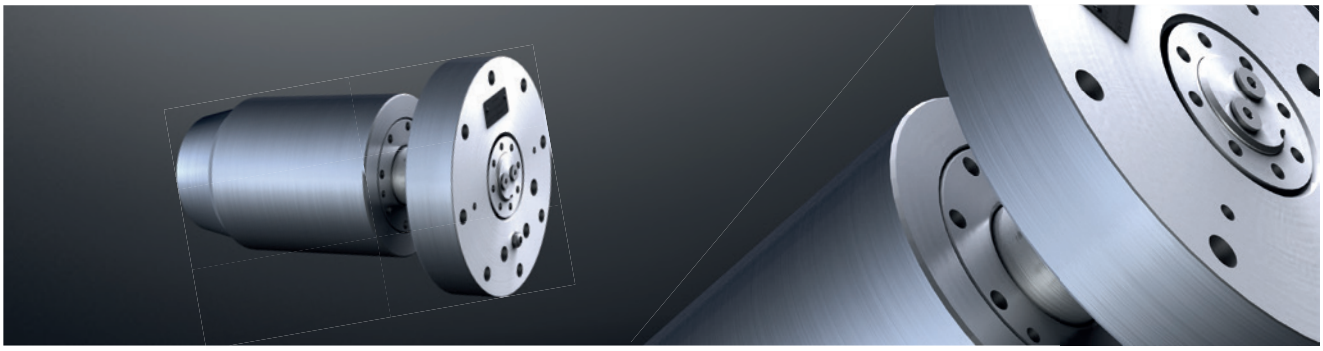


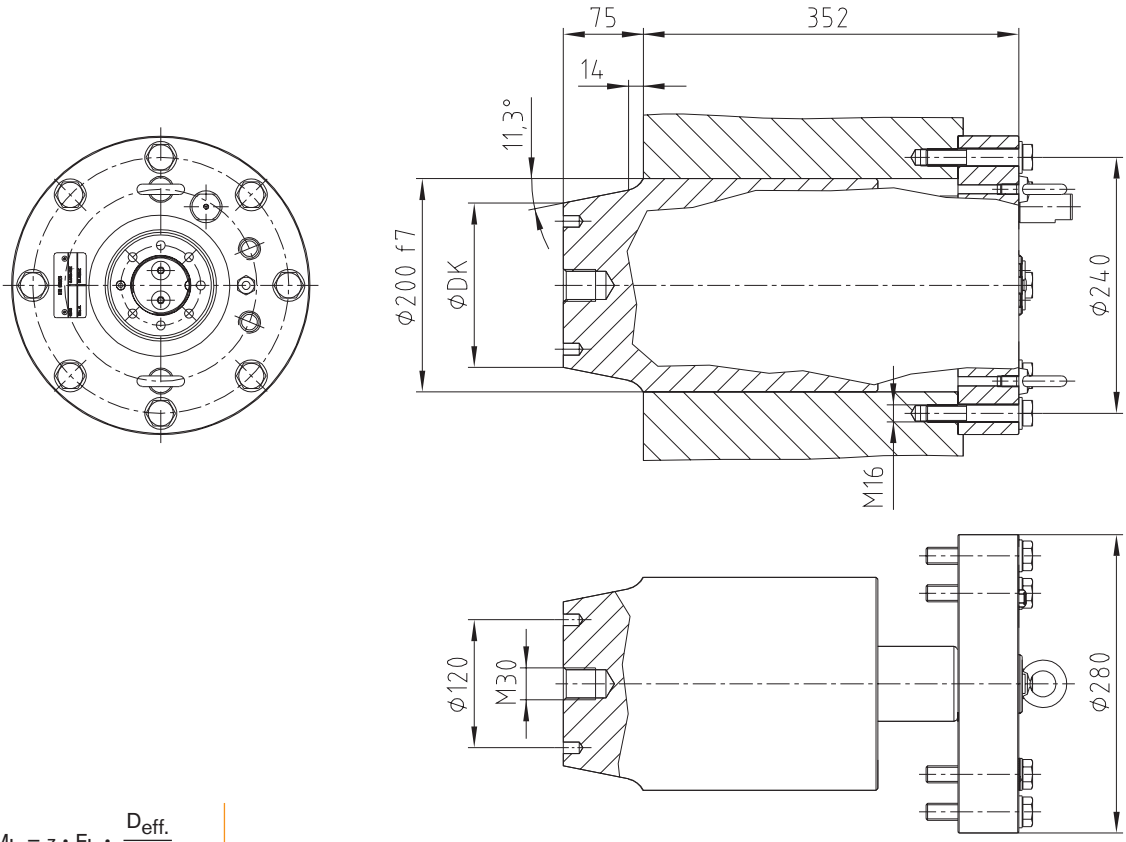
Size / Brake disk ØAxb$_1$	Weight [kg] / Mass moment of inertia [kgm²] of hub with brake disk [1]								
	65	75	90	100	110	125	140	160	180
355x30	25.6								
	0.349								
400x30	31.4	33.4							
	0.556	0.566							
450x30	38.7	40.6	49.3						
	0.885	0.895	1.009						
500x30		48.7	58.1	59.0	64.1				
		1.354	1.506	1.439	1.511				
560x30			69.9	69.9	75.0				
			2.335	2.204	2.277				
630x30			85.3	84.1	89.2	96.6			
			3.703	3.468	3.540	3.681			
710x30					107.5	115.0	129.6	145.4	168.2
					5.603	5.743	6.002	6.490	7.390
800x30						138.2	152.8	168.6	191.4
						9.063	9.322	9.810	10.710
900x30							181.8	197.7	220.5
							14.586	15.073	15.973
900x40							224.3	239.0	260.0
							19.225	19.690	20.543
1000x40							267.6	282.2	303.2
							29.016	29.481	30.335

[1] Mass moment of inertia of hub with brake disk referring to maximum bore.

KTR-STOP® RL S
Rotor Lock

Hydraulic system





$$M_L = z \cdot F_L \cdot \frac{D_{eff.}}{2}$$

F_L = Shear force [kN]

M_L = Lock torque [kNm]

z = Number of Rotor Lock

$D_{eff.}$ = Pitch circle diameter of locking disk [m]

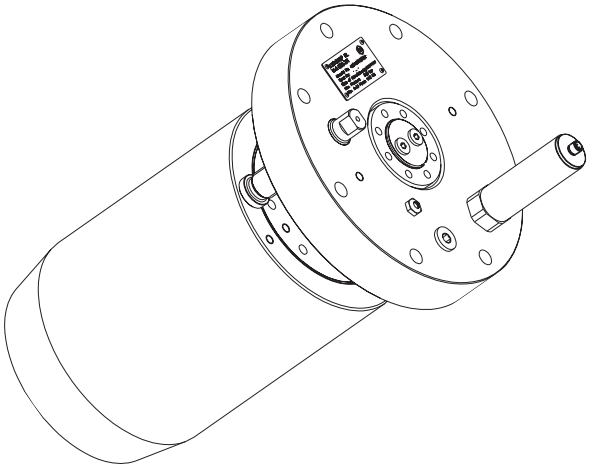
KTR-STOP® RL S			
Weight	Approx. 90 kg	Piston diameter	120 mm
Max. stroke	80 mm	Piston surface fore stroke	113.10 cm²
Max. shear force [1]	2000 kN	Piston surface back stroke	74.61 cm²
Max. operating pressure	250 bar	Oil volume per 1 mm stroke	11.3 cm³
Max. force fore stroke F+	283 kN	Oil volume with 75 mm stroke (full stroke)	848.2 cm³
Max. force back stroke F-	187 kN	Pressure port	G 1/4

[1] Please note that the shear force refers to the Rotor Lock only.

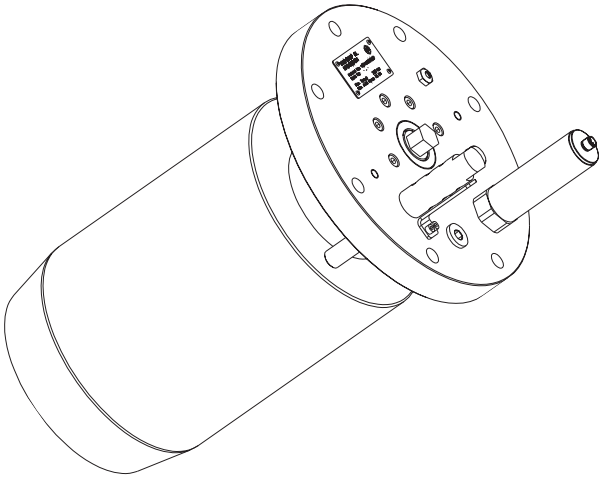
Ordering example:

KTR-STOP® RL	S	-	A	-	295	-	154
KTR Rotor Lock	Rotor Lock size		Variant		Mounting length		Small taper diameter

Hydraulic version

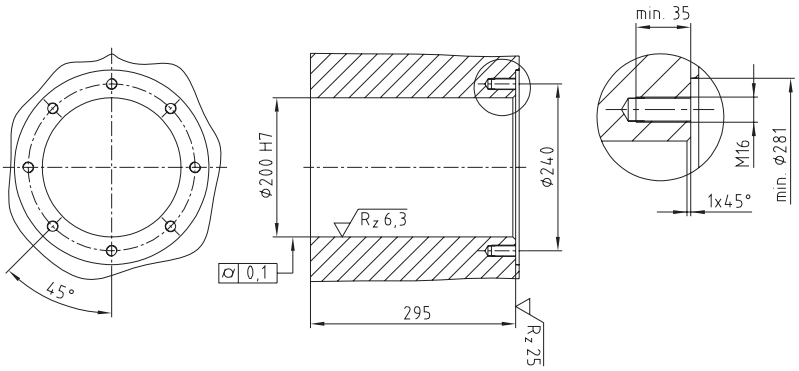


Mechanical version

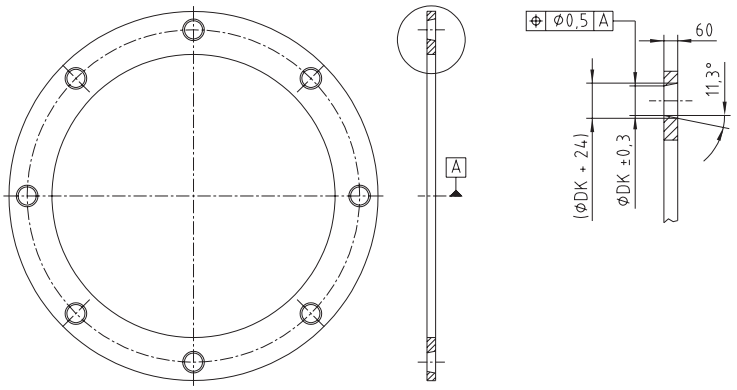


Connection dimensions

Housing

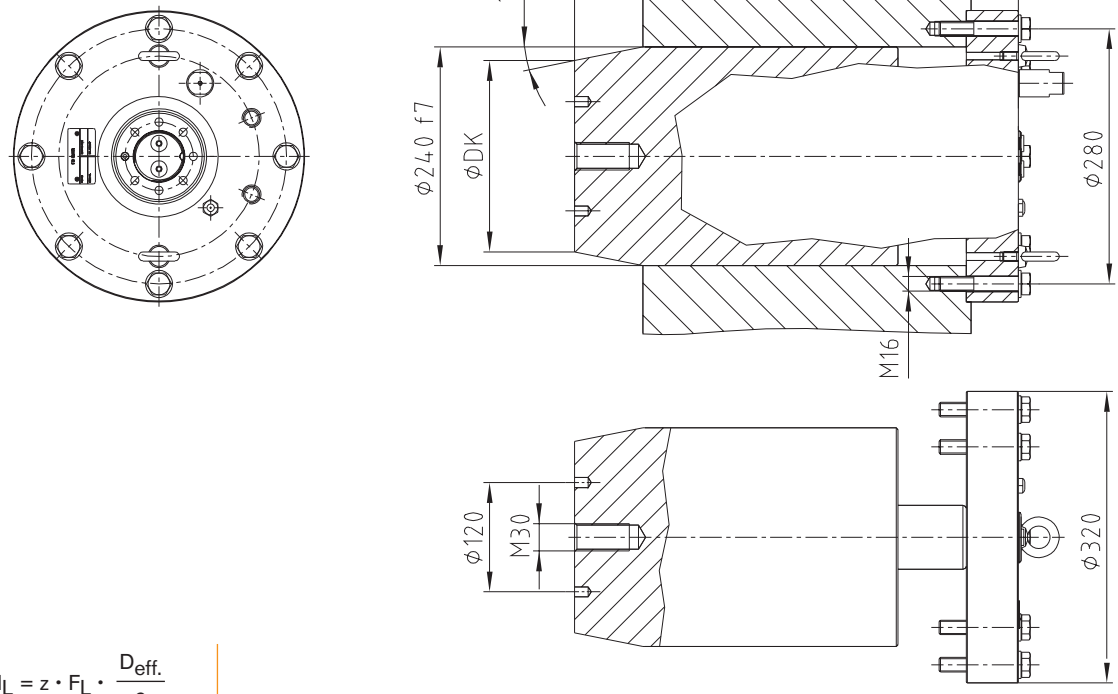


Locking disk



KTR-STOP® RL M
Rotor Lock

Hydraulic system



$$M_L = z \cdot F_L \cdot \frac{D_{eff.}}{2}$$

F_L = Shear force [kN]

M_L = Lock torque [kNm]

z = Number of Rotor Lock

$D_{eff.}$ = Pitch circle diameter of locking disk [m]

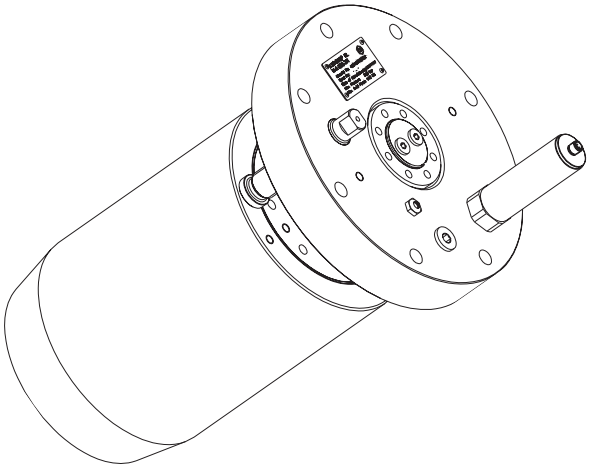
KTR-STOP® RL M			
Weight	Approx. 150 kg	Piston diameter	120 mm
Max. stroke	80 mm	Piston surface fore stroke	113.10 cm²
Max. shear force [1)]	4000 kN	Piston surface back stroke	74.61 cm²
Max. operating pressure	250 bar	Oil volume per 1 mm stroke	11.3 cm³
Max. force fore stroke F+	283 kN	Oil volume with 75 mm stroke (full stroke)	848.2 cm³
Max. force back stroke F-	187 kN	Pressure port	G 1/4

[1)] Please note that the shear force refers to the Rotor Lock only.

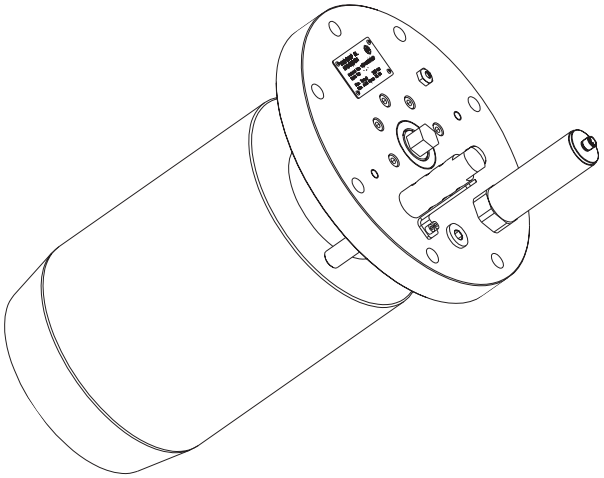
Ordering example:

KTR-STOP® RL	M	-	A	-	365	-	214
KTR Rotor Lock	Rotor Lock size		Variant		Mounting length		Small taper diameter

Hydraulic version

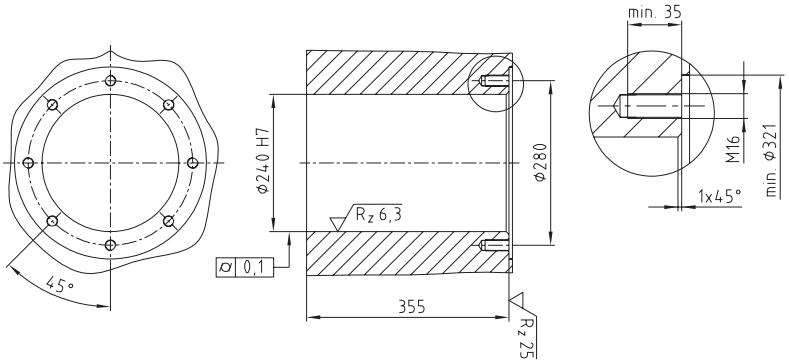


Mechanical version

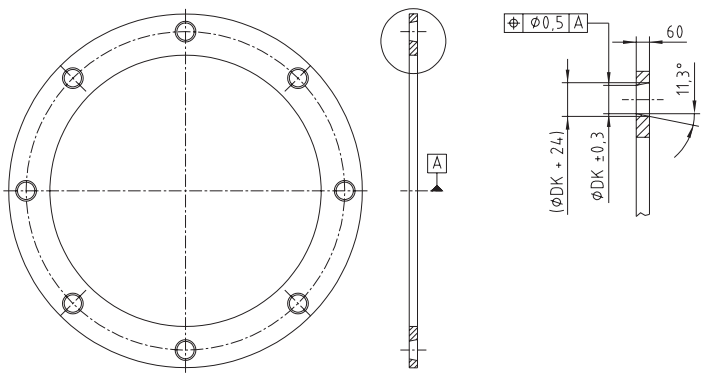


Connection dimensions

Housing

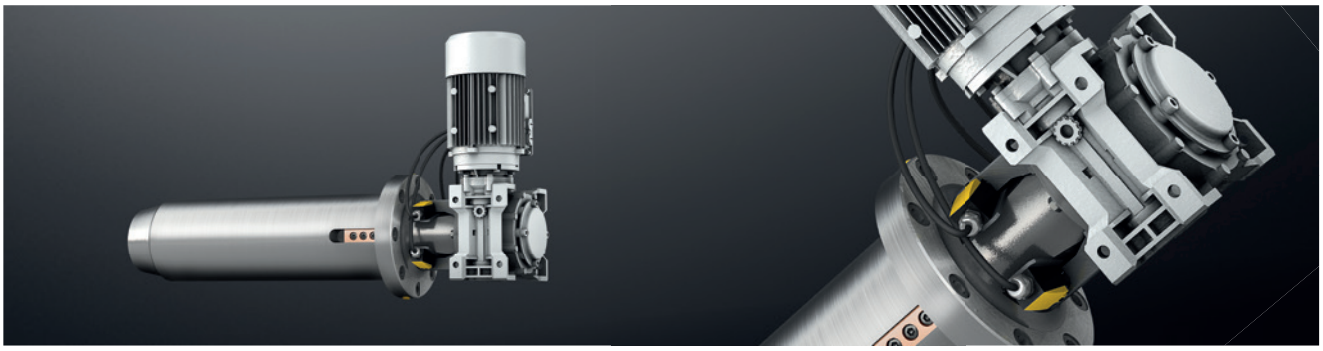


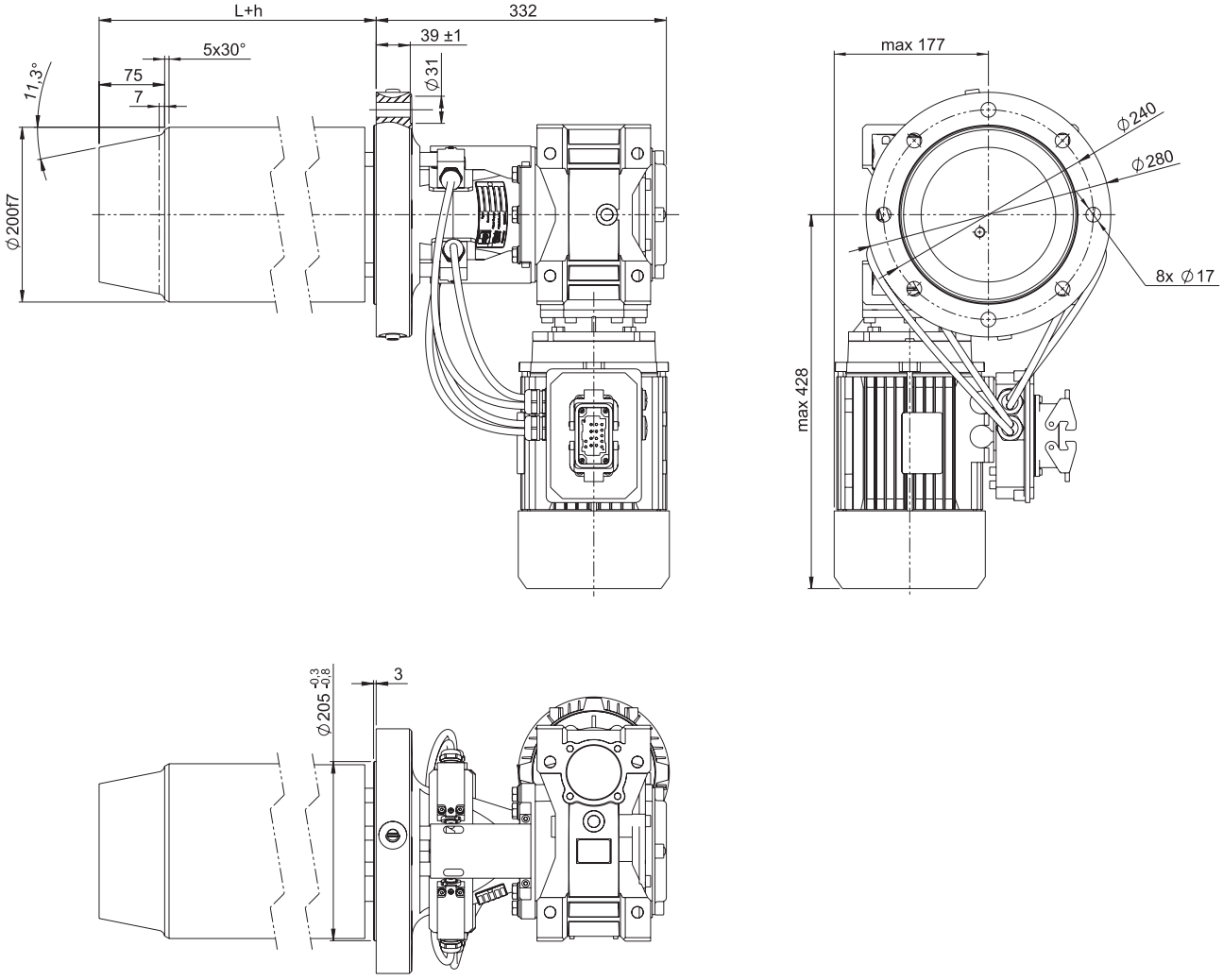
Locking disk



EMB-STOP RL S
Rotor Lock

Electromechanical system



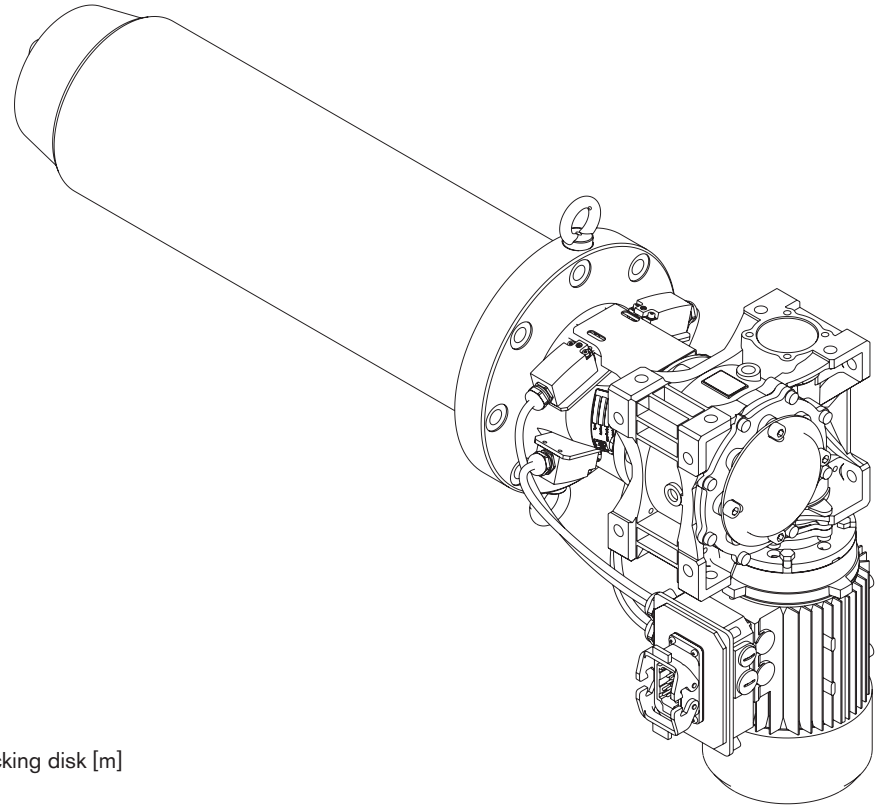


EMB-STOP RL S			
Stroke, max. (h)	75 mm	Motor power	1100 W
Shear force, max. [1]	2000 kN	Motor voltage	400 VAC, 50 Hz
Pressure force, axial F+	160 kN	Voltage of electric signals	230 VAC/24 VDC
Tensile force, axial F-	160 kN	Speed with 50 Hz	160 mm/min.
Total weight, approx. [2]	150 kg	Size of industrial connector	Han10B / HAN18EE (male)

[1] Please note that the shear force refers to the Rotor Lock only.
[2] Weight with L = 355.

Ordering example:

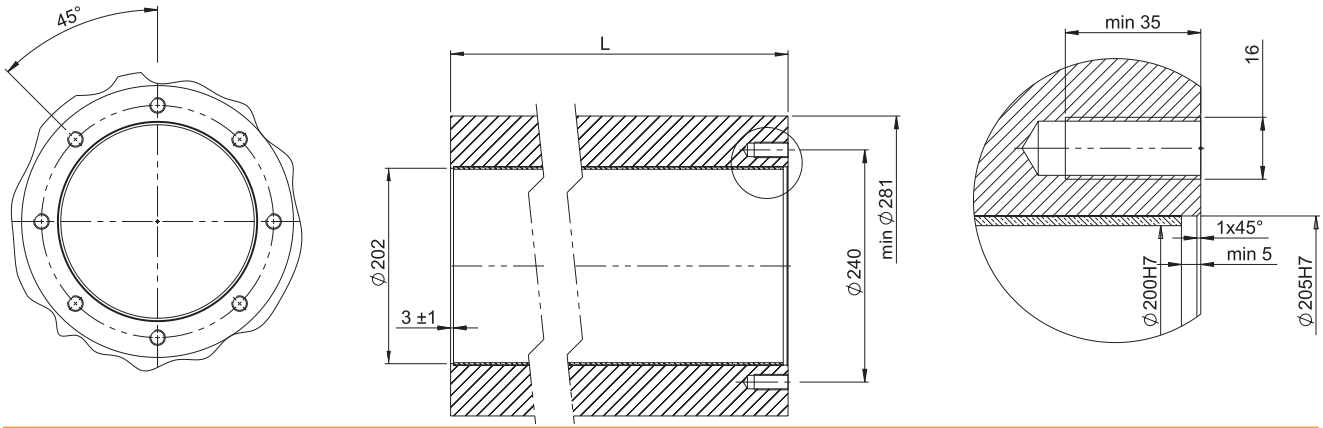
EMB-STOP RL	S	-	E	-	355	-	CON
EMB Rotor Lock	Rotor Lock size		Electric application		Mounting length (L)		Contact form (see table)



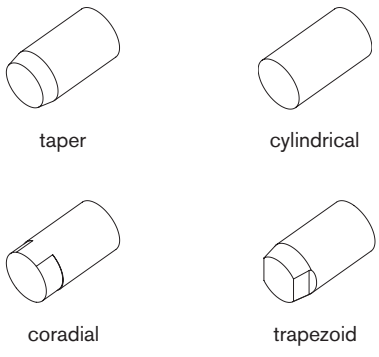
$$M_L = z \cdot F_L \cdot \frac{D_{eff.}}{2}$$

F_L = Shear force [kN]
M_L = Lock torque [kNm]
z = Number of Rotor Lock
$D_{eff.}$ = Pitch circle diameter of locking disk [m]

Connection dimensions

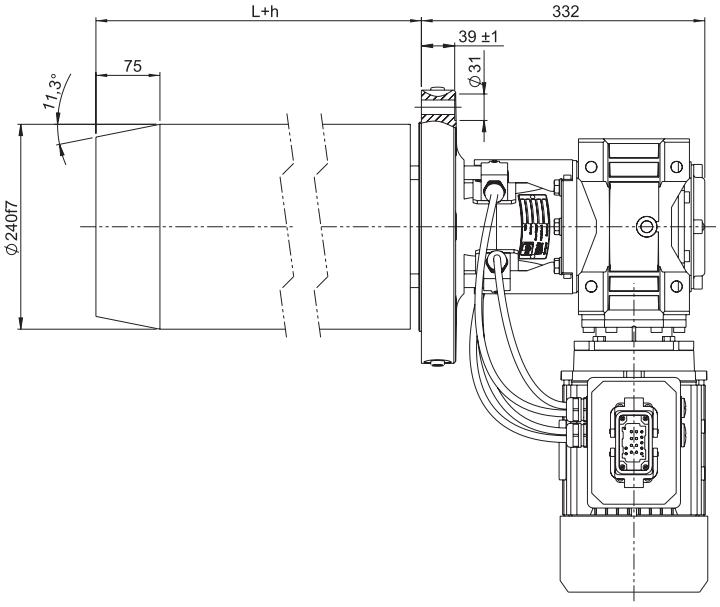


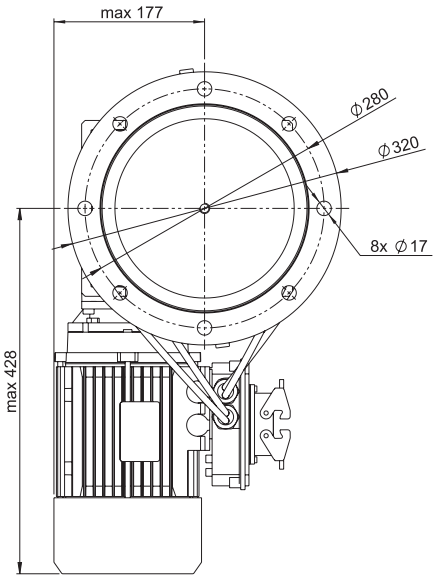
Contact form	xxx
taper	CON
coradial	COR
cylindrical	CYL
trapezoid	TRA

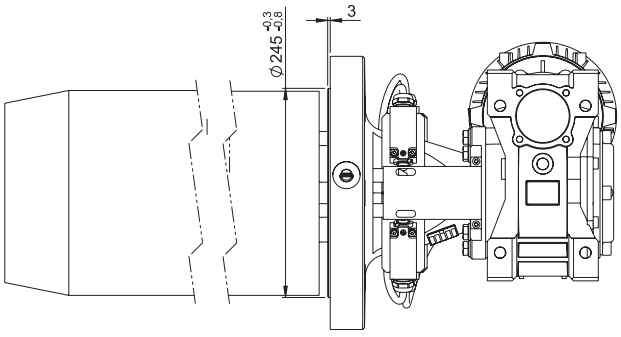


EMB-STOP RL M
Rotor Lock

Electromechanical system





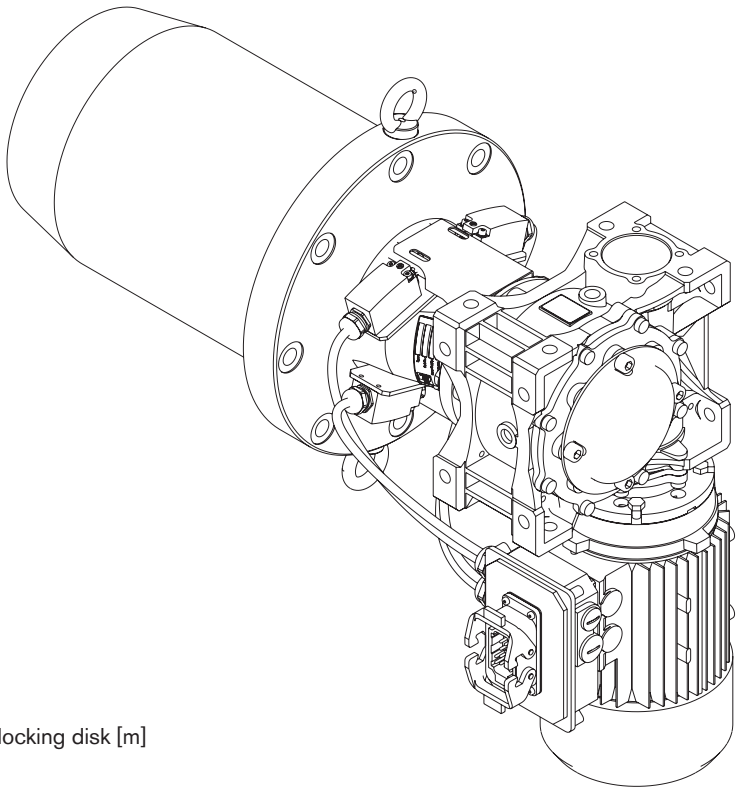


EMB-STOP RL M			
Stroke, max. (h)	75 mm	Motor power	1100 W
Shear force, max. [1]	4000 kN	Motor voltage	400 VAC, 50 Hz
Pressure force, axial F+	160 kN	Voltage of electric signals	230 VAC/24 VDC
Tensile force, axial F-	160 kN	Speed with 50 Hz	160 mm/min.
Total weight, approx. [2]	190 kg	Size of industrial connector	Han10B / HAN18EE (male)

[1] Please note that the shear force refers to the Rotor Lock only.
[2] Weight with L = 355.

Ordering example:

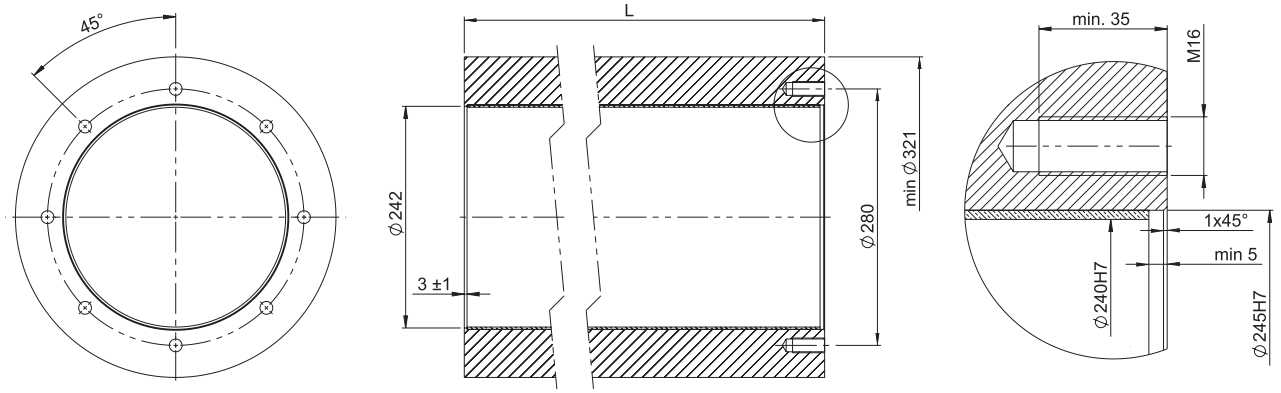
EMB-STOP RL	M	-	E	-	355	-	CON
EMB Rotor Lock	Rotor Lock size		Electric application		Mounting length (L)		Contact form (see table)



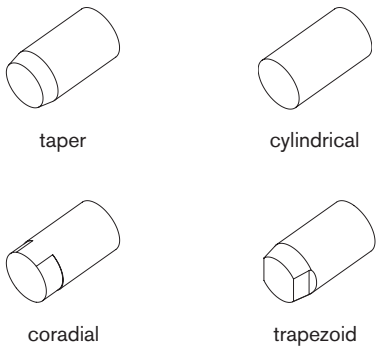
$$M_L = z \cdot F_L \cdot \frac{D_{eff.}}{2}$$

F_L = Shear force [kN]
M_L = Lock torque [kNm]
z = Number of Rotor Lock
$D_{eff.}$ = Pitch circle diameter of locking disk [m]

Connection dimensions

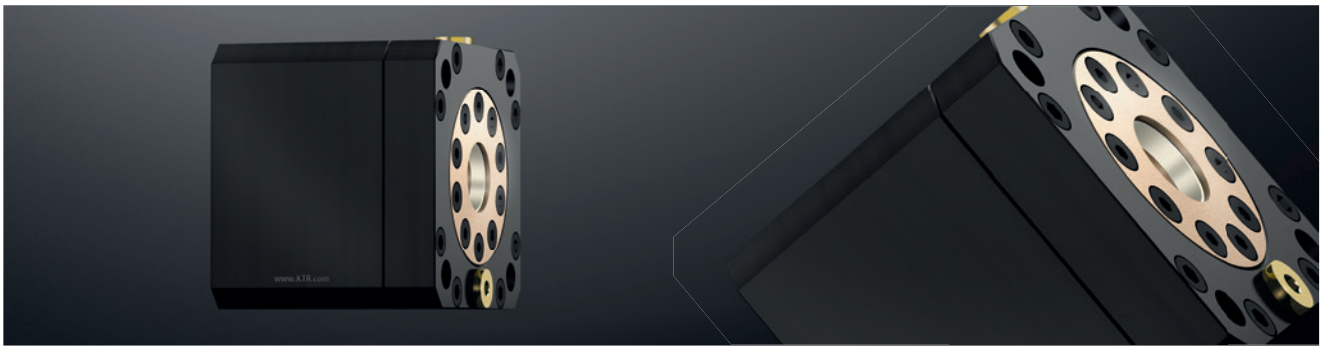


Contact form	xxx
taper	CON
coradial	COR
cylindrical	CYL
trapezoid	TRA



KTR-STOP® NC
Hydraulic clamping system

Safety clamping and braking system



Description of product:

The KTR-STOP® NC series is a passive clamping and braking system. It serves for generating a clamping/braking force respectively a clamping/braking torque on a cylindrical piston rod or shaft. This results in a delay of the rotary motion respectively keeping at standstill.

Applications:

Machine tool
- Ball screws/positioning axes
- Bar guidances

Drive technology
- Feed cylinders

General engineering
- Hoists, hydraulic presses
- Rod, piston, shaft clamping
- Lifting tables/scissors lifts
- Hydraulic lifts/hydraulic lifting device

General
- Safety catches
- Blocking systems
- Systems where additional safety devices are required

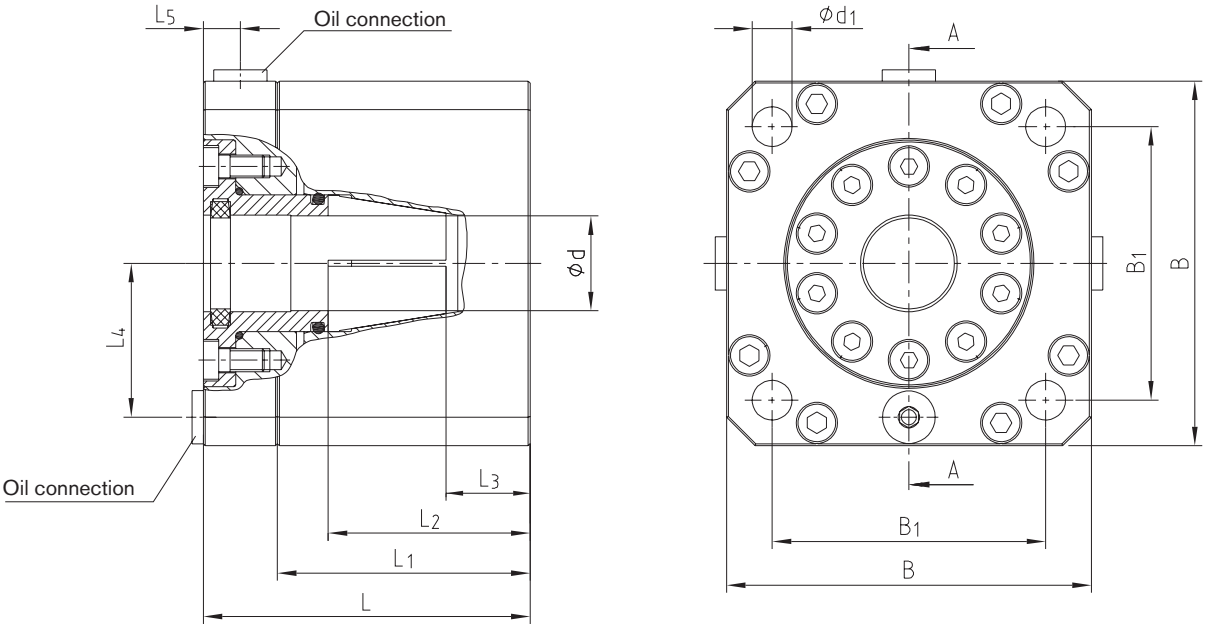
Product features:

- Passive clamping and braking system with fail-safe function
- System with hydraulic release
- Absorbing axial loads and torques
- Reduction of vibrations subject to increased stiffness in spindle drives
- Clamping bush replaceable
- To be used as an integrated solution or as a plug-in system
- To be used multifunctionally (machine tool, general engineering, ...)
- Clamping with an indefinite period of time due to the spring pressure memory
- Energy-saving due to weak locking in unpressurized condition → spring pressure memory
- No generation of heat
- Operating principle of friction fit

Ordering example:

KTR-STOP® NC	32	-	20	100 bar
Designation	Size		Shaft diameter	Opening pressure

A - A



	KTR-STOP® NC [1]																	
	Size	Dimensions [mm]										Weight	Oil connection	„Open oil filling“	Opening pressure 50 bar		Opening pressure 70 bar		Opening pressure 100 bar	
															Lock torque [3]	„Axial locking force“ [3]	Lock torque [3]	„Axial locking force“ [3]	Lock torque [3]	„Axial locking force“ [3]
		d [2]	d_1	B	B_1	L	L_1	L_2	L_3	L_4	L_5	[kg]	[/]	[dm³]	[Nm]	[N]	[Nm]	[N]	[Nm]	[N]
		12													12.5		16.5		27.5	
		15													15.5		20.5		34.5	
NEW	25	18	9	80x80	56.5	75	58	44.5	17.5	–	8.5	3.25	G 1/8	0.0055	18.5	2100	25	2750	41	4600
		20													20.5		27.5		45	
		22													22.5		30		50	
		18													35.5		50		75	
		20													40		56		83	
	32	22	10.5	96x96	72	86	66.5	53	19	40.5	10	5.25	G 1/8	0.011	43.5	4000	62	5600	91.5	8400
		24													47.5		67.5		100	
		25													50		70		105	
		22													60.5		97.5		120	
		24													66		105		130	
		25													69		110		135	
		28													77		125		155	
NEW	40	30	10.5	120x120	89	108	87.5	60	28	50	9.75	10	G 1/8	0.0137	82.5	5500	132.5	9000	165	11000
		32													88		142.5		175	
		34													93.5		150		185	
		35													96.5		155		190	
		36													100		160		200	
		25													130		200		300	
		28													145		225		335	
		30													155		240		355	
		32													165		257.5		380	
	50	34	13.5	150x150	110	125	103.5	70	29	60	9.75	19	G 1/4	0.0311	175	10500	275	16250	405	24000
		35													182.5		280		415	
		36													190		290		430	
		38													200		305		450	
		40													210		325		475	
		36													205		365		530	
		38													215		385		560	
		40													230		405		590	
		42													240		425		615	
		44													250		445		645	
NEW	63	45	17.5	180x180	140	140	110	83.75	24.75	75	15	29.6	G 1/4	0.0498	255	11500	455	20500	660	29500
		46													265		465		675	
		48													275		485		705	
		50													285		505		735	
		52													300		525		765	
		54													310		545		795	
		55													315		555		810	

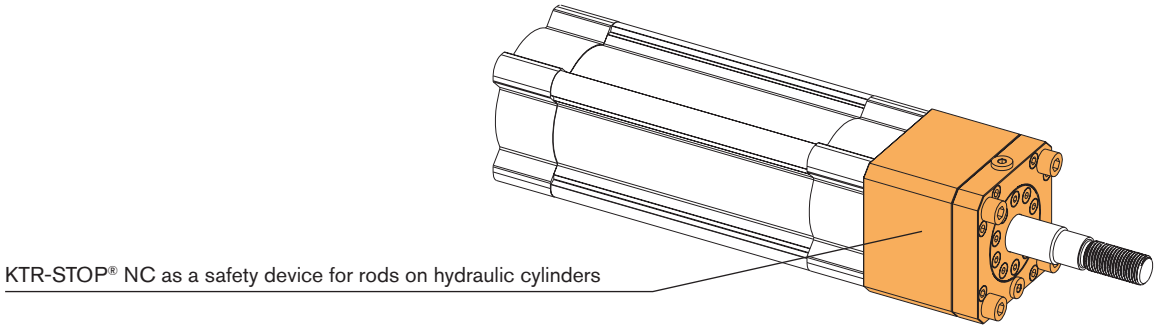
[1] All catalogue figures refer to a fit combination shaft k6; bush D8, for other specifications see page 78
[2] Other bores on request
[3] Referring to a coefficient of friction of μ =0.12

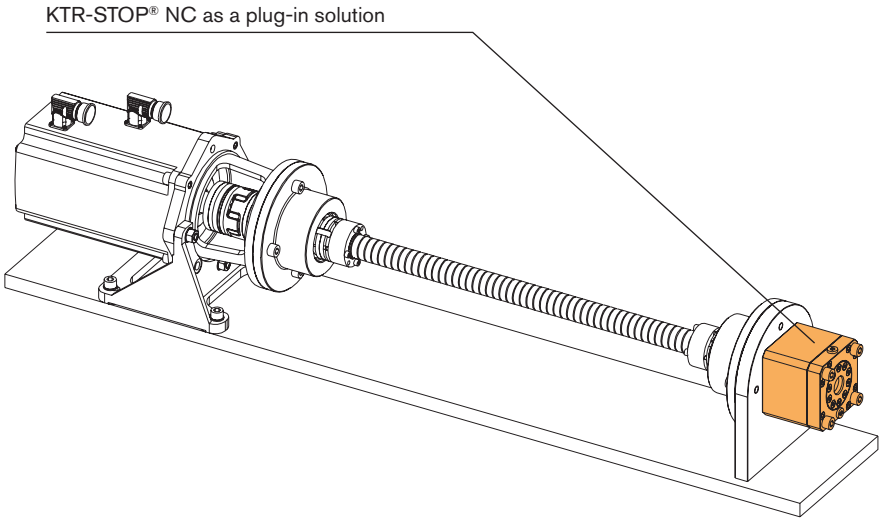
Apart from the standard programme customized solutions are available on request.

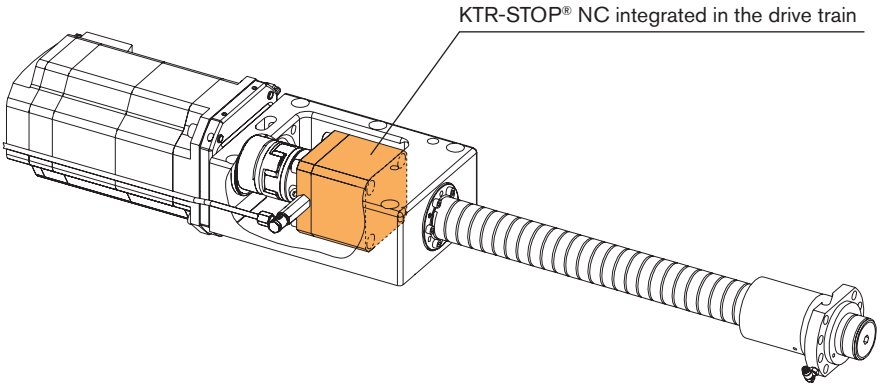
Safety clamping and braking system

Specifications of piston rod/ball screw		
	Steel, hard chromium plated	Steel, hardened
Coating thickness	Min. 20 µm	-
Hardness	-	Min. HRC 60
Surface finish	Ra < 0.4 µm	
Yield strength R_e	> 400 N/mm²	
Diameter tolerance	k6	

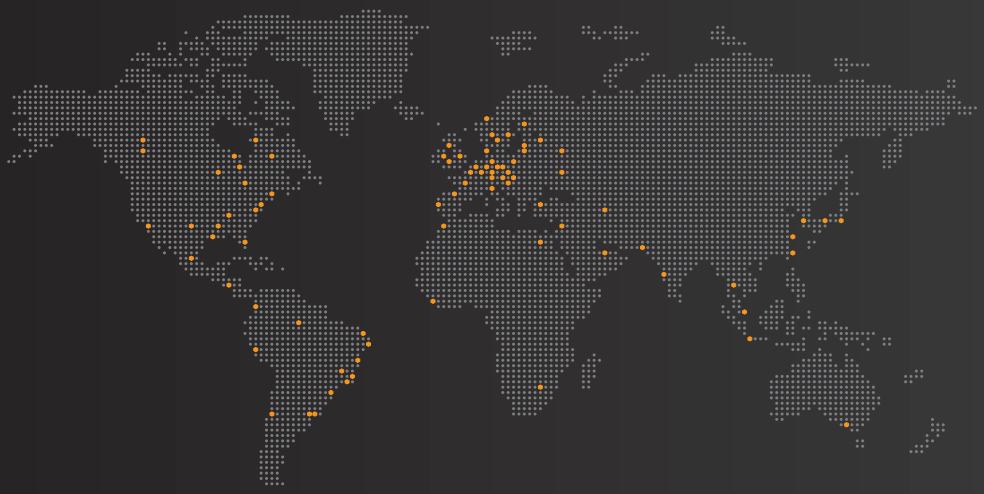
Examples of application and assembly:







Notes



Headquarters:
KTR Systems GmbH
Carl-Zeiss-Straße 25
D-48432 Rheine
Phone: +49 5971 798-0
Fax: +49 5971 798-698
and 798-450
E-mail: mail@ktr.com
Internet: www.ktr.com

KTR Brake Systems GmbH
Competence Center for Brake Systems
Zur Brinke 14
D-33758 Schloß Holte-Stukenbrock
Phone: +49 5207 99161-0
Mobile: +49 175 2650033
Fax: +49 5207 99161-11

Leiter Vertrieb Bremsen Wind
Jürn Edzards, Dipl.-Ing. (FH)
Zur Brinke 14
D-33758 Schloß Holte-Stukenbrock
Phone: +49 5207 99161-0
Mobile: +49 175 2650033
Fax: j.edzards@ktr.com

Leiter Vertrieb Bremsen Industrie
Thomas Wienkotte, Dipl.-Ing. (FH)
Peter-Schumacher-Straße 102
D-50171 Kerpen
Phone: +49 2237 971796
Mobile: +49 172 5859448
E-mail: t.wienkotte@ktr.com

KTR worldwide:

Algeria
KTR Alger
Algeria Business Center -
Pins Maritimes
DZ-16130 Alger Mohammadia
Phone: +213 661 92 24 00
E-mail: ktr-dz@ktr.com

Brazil
KTR do Brasil Ltda.
Rua Jandaia do Sul 471 -
Bairro Emiliano Perneta
Pinhais - PR - Cep: 83324-040
Phone: +55 41 36 69 57 13
Fax: +55 41 36 69 57 13
E-mail: ktr-br@ktr.com

Chile
KTR Systems Chile SpA
Calle Bucarest 17
Oficina 33 Providencia
Santiago de Chile
Phone: +56 23 22 46 674
Mobile: +56 9 44 75 57 02
E-mail: ktr-cl@ktr.com

China
KTR Power Transmission Technology
(Shanghai) Co. Ltd.
Building 1005, ZOBON Business Park
999 Wangqiao Road
Pudong
Shanghai 201201
Phone: +86 21 58 38 18 00
Fax: +86 21 58 38 19 00
E-mail: ktr-cn@ktr.com

Czech Republic
KTR CR, spol. s. r. o.
Brněnská 559
569 43 Jevíčko
Czech republic
Phone: +420 461 325 014
E-mail: ktr-cz@ktr.com

Finland
KTR Finland OY
Tiistinniityntie 4
SF-02230 Espoo
PL 23
SF-02231 Espoo
Phone: +358 2 07 41 46 10
Fax: +358 2 07 41 46 19
E-mail: ktr-fi@ktr.com

France
KTR France S.A.R.L.
5 CHEMIN DE LA BROCARDIERE
F-69570 DARDILLY
Phone: +33 478 64 54 66
Fax: +33 478 64 54 31
E-mail: ktr-fr@ktr.com

India
KTR Couplings (India) Pvt. Ltd.,
T-36 / 37 / 38, MIDC Bhosari
Pune 411026
Phone: +91 20 27 12 73 22
Fax: +91 20 27 12 73 23
E-mail: ktr-in@ktr.com

Italy
KTR Systems GmbH
Sede Secondaria Italia
Via Giovanni Brodolini, 8
I – 40133 Bologna (BO)
Phone: +39 051 613 32 32
Fax: +39 02 700 37 570
E-mail: ktr-it@ktr.com

Japan
KTR Japan Co., Ltd.
Toei Bldg.2F, 6-1-8 Motomachi-dori
Chuo-ku, Kobe
650-0022 Japan
Phone: +81 7 89 54 65 70
Fax: +81 7 85 74 03 10
E-mail: ktr-jp@ktr.com

KTR Japan – Tokyo Office
1-11-6, Higashi-Ueno, Taito-Ku,
Tokyo 110-0015 Japan
(Takeno-building, 5F)
Japan
Phone: +81 3 58 18 32 07
Fax: +81 3 58 18 32 08

Korea
KTR Korea Ltd.
101, 978-10, Topyung-Dong
Guri-City, Gyeonggi-Do
471-060 Korea
Phone: +82 3 15 69 45 10
Fax: +82 3 15 69 45 25
E-mail: ktr-kr@ktr.com

Netherlands
KTR Benelux B. V.
Postbus 87
NL-7550 AB Hengelo (O)
Oosterveldsingel 3
NL-7558 PJ Hengelo (O)
Phone: +31 74 2553680
Fax: +31 74 2553689
E-mail: ktr-nl@ktr.com

Norway
KTR Systems Norge AS
Fjellbovegen 13
N-2016 Frogner
Phone: +47 64 83 54 90
Fax: +47 64 83 54 95
E-mail: ktr-no@ktr.com

Poland
KTR Polska Sp. z o. o.
ul. Czerwone Maki 65
PL–30-392 Kraków
Phone: +48 12 267 28 83
Fax: +48 12 267 07 66
E-mail: ktr-pl@ktr.com

KTR Steel Construction Sp. z o. o.
ul. Kolejowa 1
46-040 Ozimek
Phone: +48 77 402 68 50
Fax: +48 77 465 11 36
E-mail: ks.ozimek@ks.com.pl

Russia
KTR RUS LLC
6 Verhnii Pereulok 12
Litera A, Office 229
194292 St. Petersburg
Phone: +7 812 383 51 20
Fax: +7 812 383 51 25
E-mail: ktr-ru@ktr.com
Internet: www.ktr.ru

South Africa
KTR Couplings SA (Pty) Ltd.
28 Spartan Road, Kempton Park,
GautengSpartan Ext. 21
Phone: +27 11 281 3801
Fax: +27 11 281 3812
E-mail: ktr-za@ktr.com

Spain
KTR Systems GmbH
Estartetxe, n° 5–Oficina 218
E-48940 Leioa (Vizcaya)
Phone: +34 9 44 80 39 09
Fax: +34 9 44 31 68 07
E-mail: ktr-es@ktr.com

Sweden
KTR Sverige AB
Box 742
S-191 27 Sollentuna
Phone: +46 86 25 02 90
Fax: +46 86 25 02 99
E-mail: info.se@ktr.com

Switzerland
KTR Systems Schweiz AG
Bahnstr. 60
CH-8105 Regensdorf
Phone: +41 4 33 11 15 55
Fax: +41 4 33 11 15 56
E-mail: ktr-ch@ktr.com

Taiwan
KTR Taiwan Ltd.
No.: 30-1, 36 Rd
Taichung Industry Zone
Taichung City
407 Taiwan (R. O. C.)
Phone: +886 4 23 59 32 78
Fax: +886 4 23 59 75 78
E-mail: ktr-tw@ktr.com

Turkey
KTR Turkey
Güç Aktarma Sistemleri San. ve Tic. Ltd.
Sti.
Kayışdagı Cad. No: 117/2
34758 Atasehir -İstanbul
Phone: +90 216 574 37 80
Fax: +90 216 574 34 45
E-mail: ktr-tr@ktr.com

United Kingdom
KTR U.K. Ltd.
Robert House
Unit 7, Acorn Business Park
Woodseats Close
Sheffield
United Kingdom, S8 0TB
Phone: +44 11 42 58 77 57
Fax: +44 11 42 58 77 40
E-mail: ktr-uk@ktr.com

USA
KTR Corporation
122 Anchor Road
Michigan City, Indiana 46360
Phone: +1 2 19 8 72 91 00
Fax: +1 2 19 8 72 91 50
E-mail: ktr-us@ktr.com

For all representatives and sales partners please refer to www.ktr.com.

Summary of literature

No matter if a perfect drive, a brake that takes effect, space-saving cooling or accurate hydraulics is required, if on land, by sea or at an airy height - KTR's product portfolio is just as manifold as its applications. The following catalogues and leaflets provide for a survey. Available at **www.ktr.com**

Product catalogues

ATEX leaflet

Company leaflet

Headquarters
KTR Systems GmbH
Carl-Zeiss-Straße 25
D-48432 Rheine
Phone: +49 5971 798-0
Fax: +49 5971 798-698 or 798-450
E-mail: mail@ktr.com
Internet: www.ktr.com

KTR Brake Systems GmbH
Competence Center for Brake Systems
D-33758 Schloß Holte-Stukenbrock
Phone: +49 5207 99161-0
Fax: +49 5207 99161-11
E-mail: info_kbs@ktr.com
Internet: www.ktr-brake-systems.com

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