Made for Motion KTR

Brake systems

KTR-STOP®

EMB-STOP

2022/23

www.ktr.com

Fast, easy and reliable - with our product finder

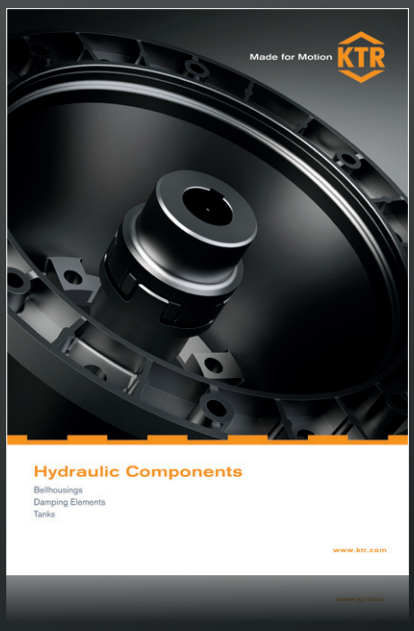
The product finder allows you to get to the suitable product in just a few steps. For this purpose either make use of the search function if you already know the product or use the full-text search which guides you to the requested result via various product-specific filters.

Product finder

The suitable product for your application - fast and simple with our product finder.

DID YOU KNOW ...

that couplings, hydraulic components and coolers are part of our scope of supply, too?
Details are available at **ktr.com**.



POSSIBLE COMBINATIONS

Our brake systems can be combined with our drive components.

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 know-how and 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.

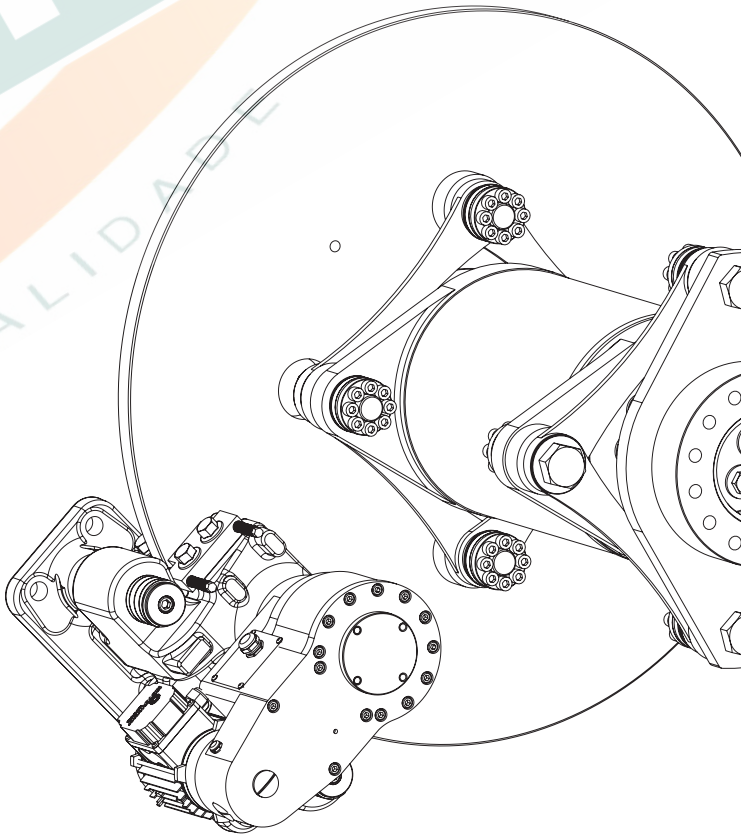
„What can actually not be slowed down? Our innovative capacity."

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.



Those who value KTR as a manufacturer will love us as a partner.

KTR provides the mechanical and plant engineering with an extensive portfolio of high-quality drive and hydraulic components and cooling systems. We are pleased to be at your service during the designing stage and develop tailor-made solutions for you. Perfectly organized logistics, global presence via 24 subsidiary companies and more than 90 distributors along with an international network consisting of 8 production sites are the prerequisite for quick delivery. When it comes to service we ensure short distances along with competent and personal support.

Made for Motion KTR

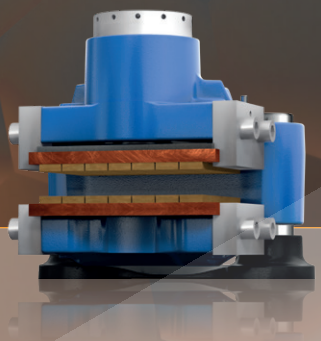
„Innovation and tradition are the key components of our product portfolio and KTR's corporate culture.“

Nicola Warning, CEO of KTR

Wherever motion is essential, we have the right answer.

Drive Technology

Mechanical components are and will remain essential in drive technology. The industry's demands on components grow continuously: energy efficiency, power density, ease of servicing and electronification. Our portfolio includes couplings and torque limiters, clamping sets and universal joints as well as torque measuring shafts.



Brake systems

Our hydraulic and electromechanical brake systems are globally used in various industries. Customer preference and parameters of the application decide on the selection of the right brake.

Hydraulic components

For almost 50 years we have provided the industry with a continuously growing range of hydraulic components from our in-house development and manufacturing: accurate selection, high-quality processing, quick availability.

Cooling systems

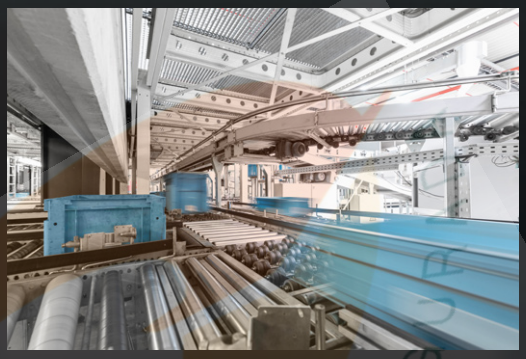
As a customised product or standard solution, multimedium or oil/air cooler, for mobile machines or stationary hydraulics, optionally available as a marine or ATEX version, powerful and efficient.

OUR INDUSTRIES

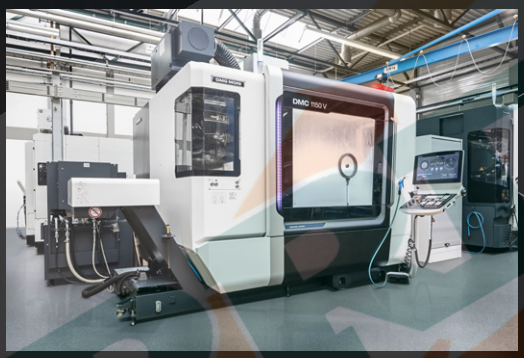
Wind power

Construction and agricultural machines

Pumps and compressors

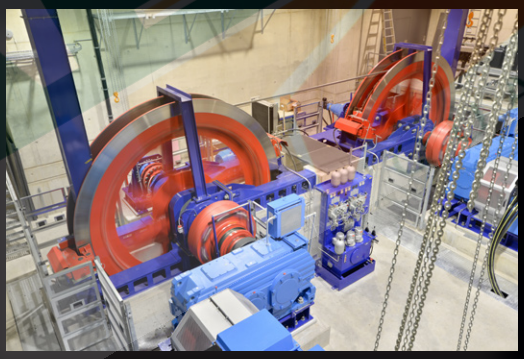


Indoor materials handling



Machine tools

Hydraulics

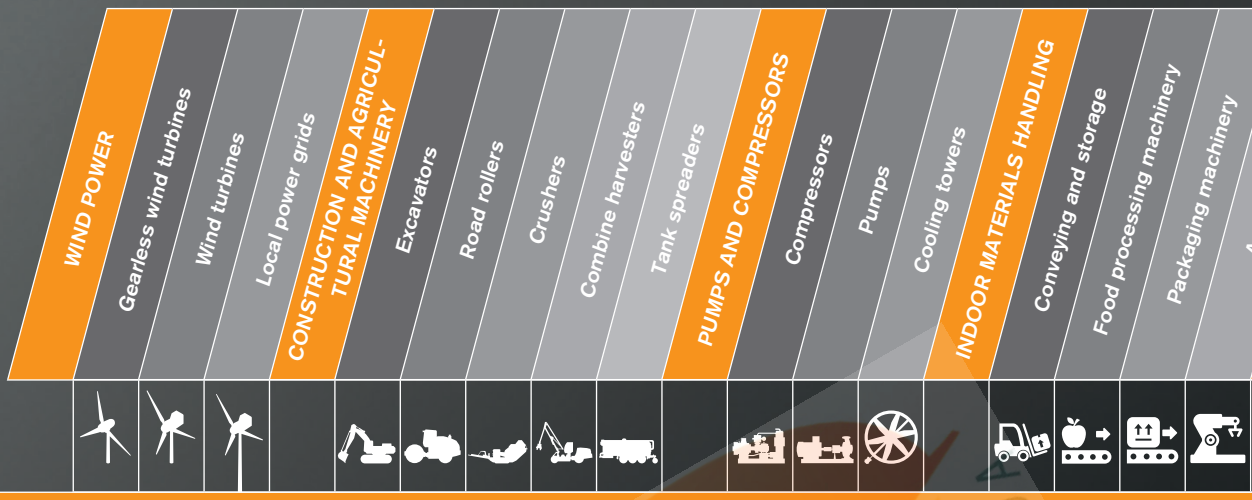


General drive technology

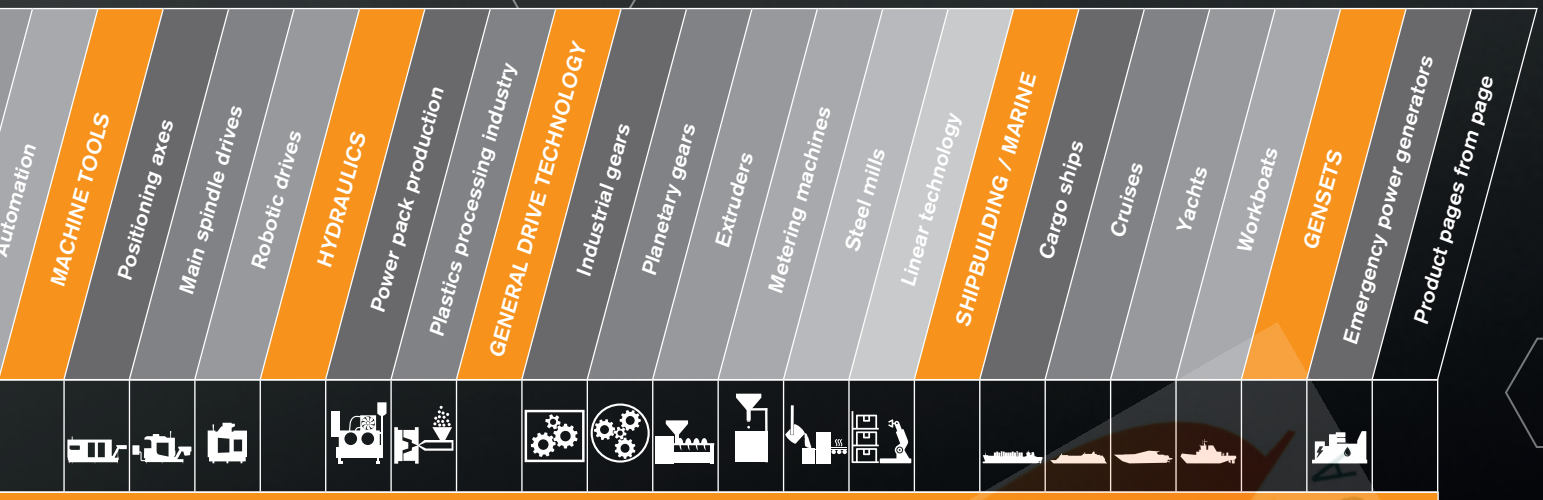
Marine / shipbuilding

Stationary power generation

SUMMARY OF PRODUCTS/INDUSTRIES



	WIND POWER				CONSTRUCTION AND AGRICULTURAL MACHINERY						PUMPS AND COMPRESSORS				INDOOR MATERIALS HANDLING				
	Gearless wind turbines	Wind turbines	Local power grids		Excavators	Road rollers	Crushers	Combine harvesters	Tank spreaders		Compressors	Pumps	Cooling towers		Conveying and storage	Food processing machinery	Packaging machinery	
PASSIVE FLOATING CALIPER BRAKES																		
Hydraulic brake system																		
KTR-STOP® XS-xx-F	■	■			■								■		■			
KTR-STOP® S-xx-F	■	■			■								■		■			
KTR-STOP® M-xxx-F	■	■																
KTR-STOP® XL-xxx-F																		
KTR-STOP® XXL-xxxx-F																		
Electromechanical brake system																		
EMB-STOP XS-P-xx-F	■	■											■		■			
EMB-STOP S-P-xx-F Soft-Braking	■	■											■		■			
EMB-STOP S-P-xx-F Fast-Braking													■		■			
EMB-STOP M-P-xx-F Fast-Braking													■		■			
PASSIVE FIXED CALIPER BRAKES																		
Hydraulic brake system																		
KTR-STOP® XS-xx					■								■		■			
KTR-STOP® S-xx					■								■		■			
KTR-STOP® M-xxx																		
KTR-STOP® L light-xxx																		
KTR-STOP® L-xxx																		
THRUSTER BRAKES																		
Electrohydraulic brake system																		
KTR-STOP® TB S																		
KTR-STOP® TB T																		
Electrohydraulic thrusters																		
KTR-STOP® TB thruster																		
YAW BRAKES																		
Hydraulic brake system																		
KTR-STOP® YAW S	■	■			■													
KTR-STOP® YAW M	■	■			■													
KTR-STOP® YAW L	■	■			■													
ACTIVE FIXED CALIPER BRAKE																		
Hydraulic brake system																		
KTR-STOP® M-D	■	■																
ACTIVE FLOATING CALIPER BRAKES																		
Hydraulic brake system																		
KTR-STOP® XS-A-F	■	■											■					
KTR-STOP® S-A-F	■	■											■					
KTR-STOP® M-A-F	■	■											■					
Electromechanical brake system																		
EMB-STOP XS-A-xx-F	■	■											■					
EMB-STOP S-A-xx-F	■	■											■					
EMB-STOP L-A-xxx-F	■	■											■					
Electronic control system																		
IntelliRamp®																		
EMB-STOP Control Box	■	■											■					
EMB-STOP SBT																		
Hubs with brake disks																		
KTR-STOP® NBS					■								■		■			
ROTOR LOCK																		
Hydraulic system																		
KTR-STOP® RL S	■	■																
KTR-STOP® RL M	■	■																
Electromechanical system																		
EMB-STOP RL S	■	■																
EMB-STOP RL M	■	■																



Clamping forces of brake systems

Passive floating caliper brakes

Clamping forces [kN]

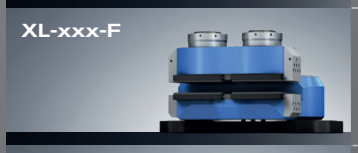
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900

Hydraulic KTR-STOP®

see page 18

see page 20

see page 22



see page 24

800 to 1200 [kN]

see page 26

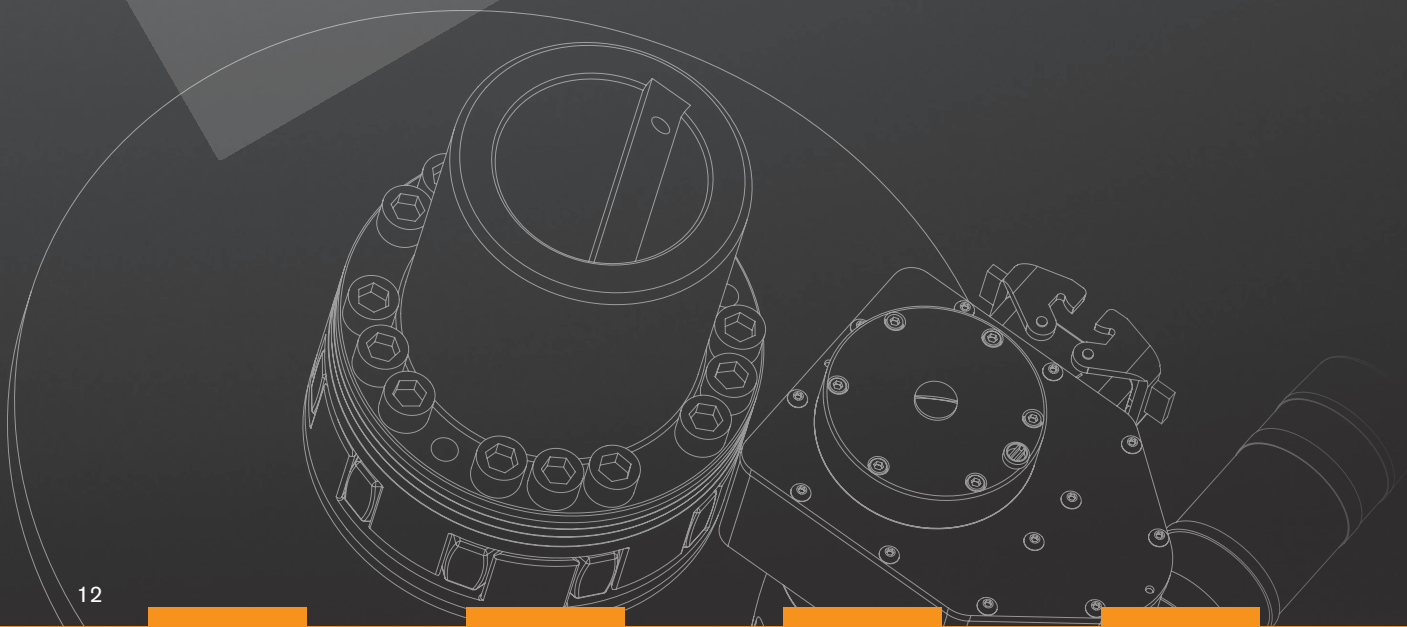
Electromechanical EMB-STOP

see page 28

see page 30

see page 32

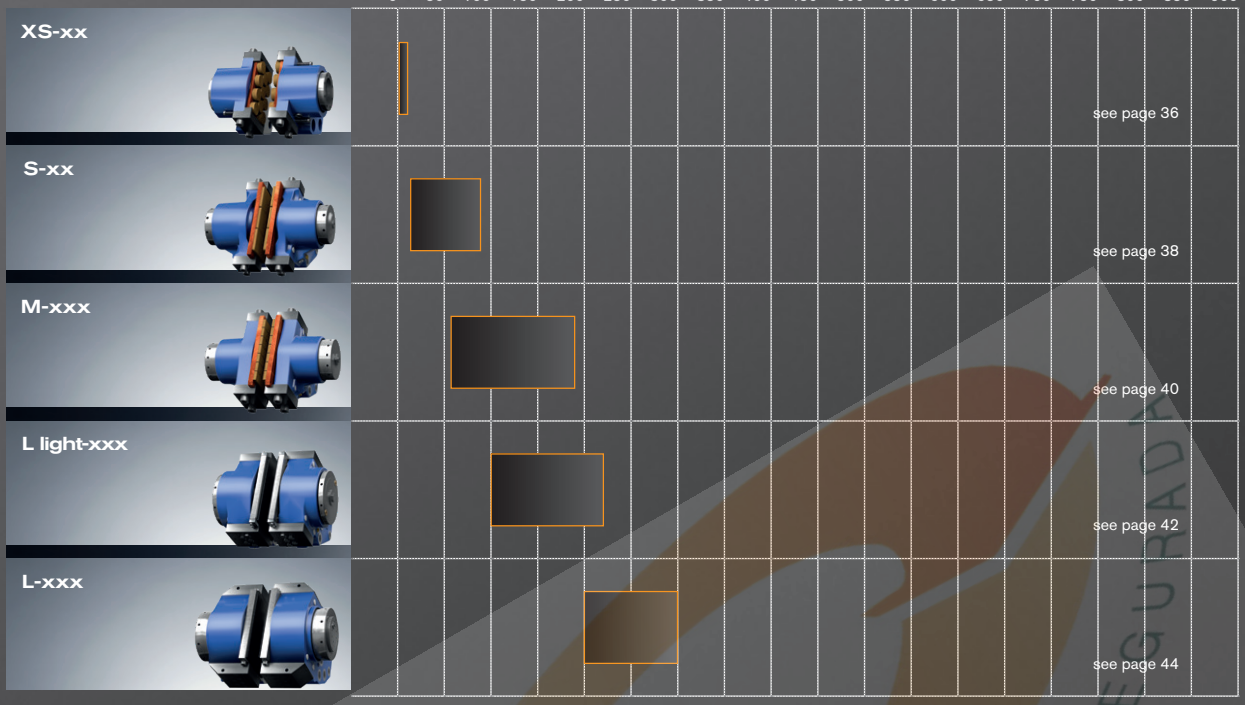
see page 34



Passive fixed caliper brakes

Clamping forces [kN]

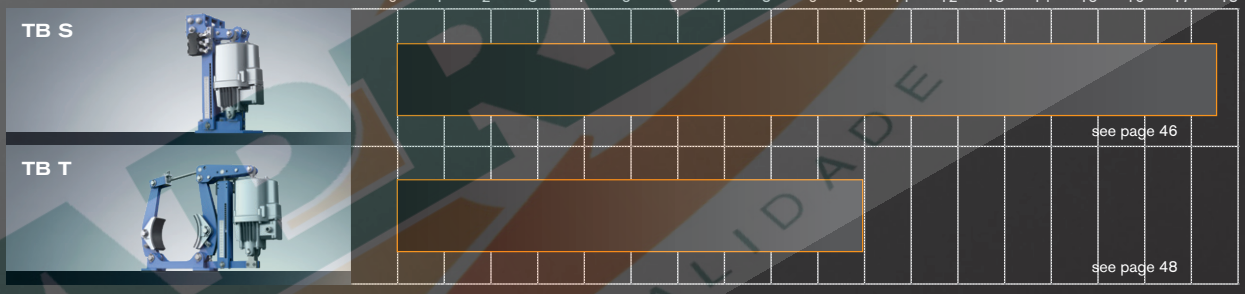
Hydraulic KTR-STOP®



Passive brake systems

Braking torque [kNm]

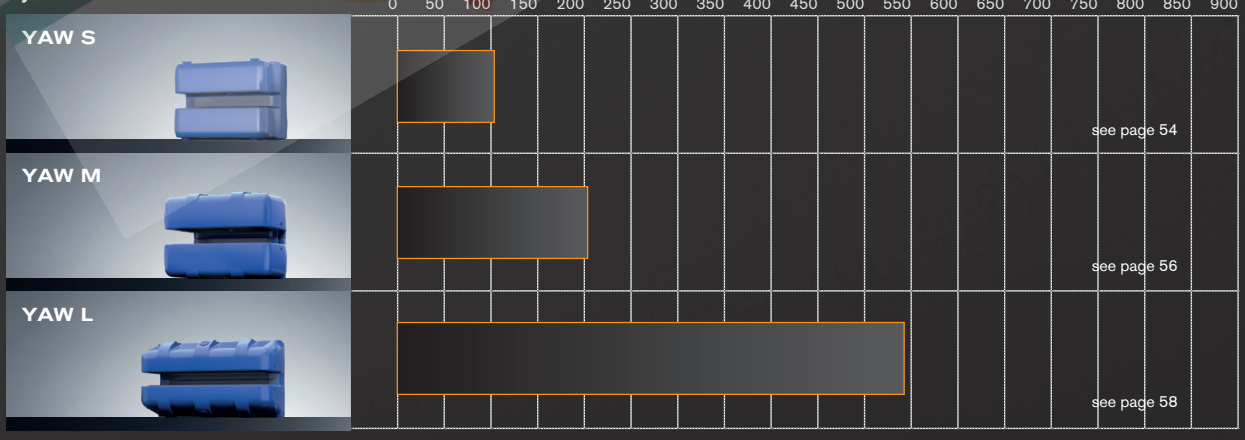
Electrohydraulic KTR-STOP® TB



Yaw brakes

Clamping forces [kN]

Hydraulic KTR-STOP®



Clamping forces of brake systems

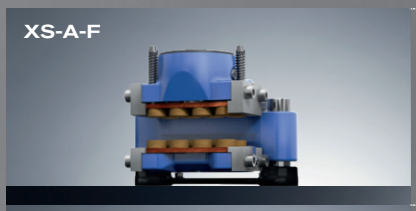
Active floating caliper brakes

Clamping forces [kN]

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

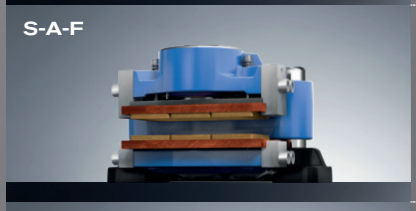
Hydraulic KTR-STOP®

XS-A-F



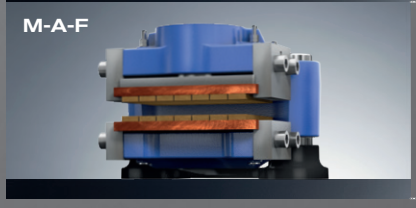
see page 62

S-A-F



see page 64

M-A-F

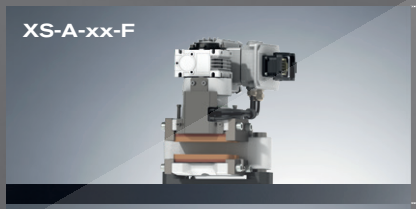


see page 66

Electromechanical EMB-STOP

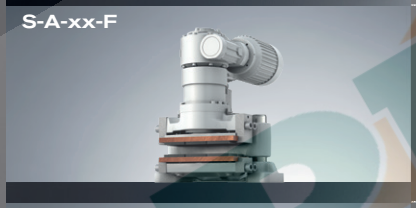
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900

XS-A-xx-F



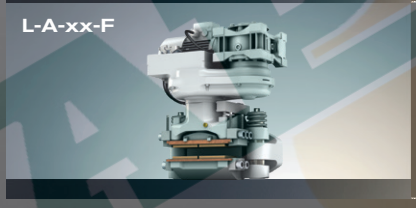
see page 68

S-A-xx-F



see page 70

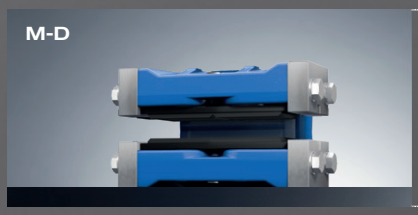
L-A-xx-F

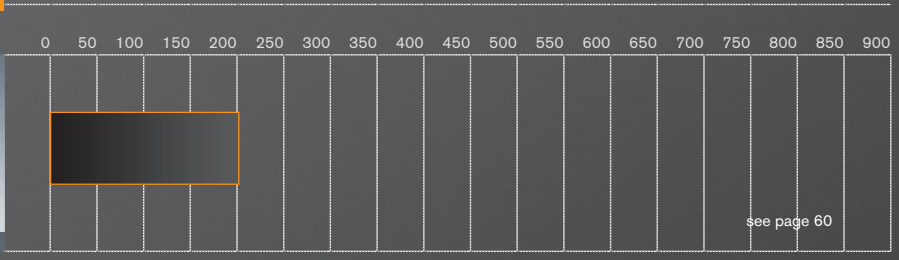


see page 72

Active fixed caliper brake

Hydraulic KTR-STOP®





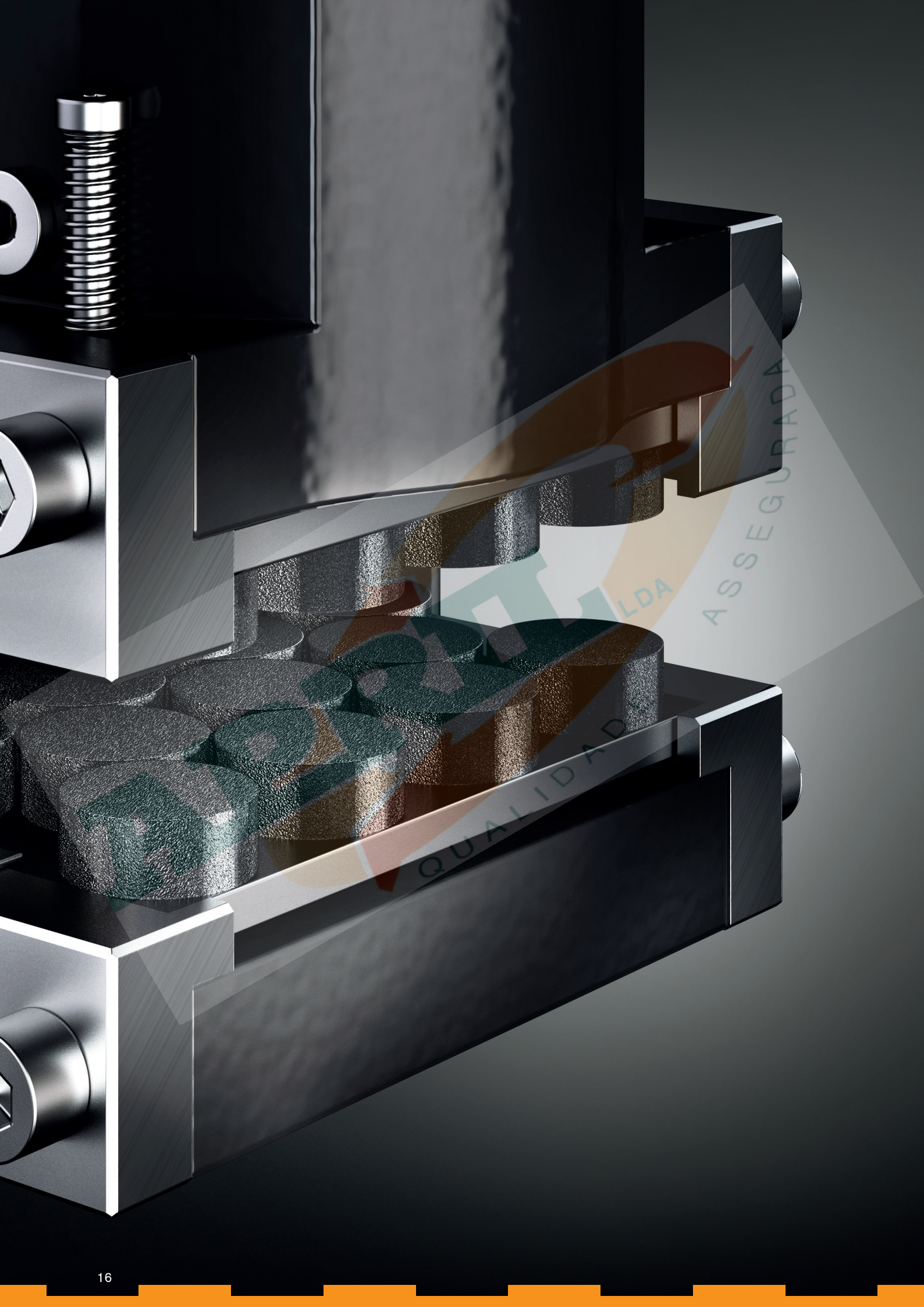
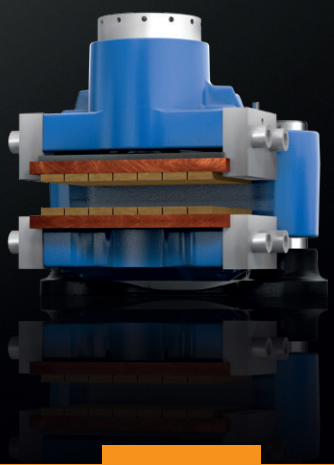
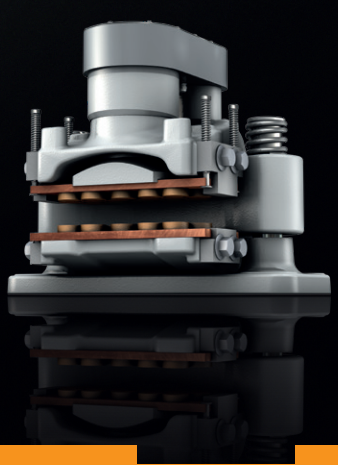


TABLE OF CONTENTS

KTR-STOP®



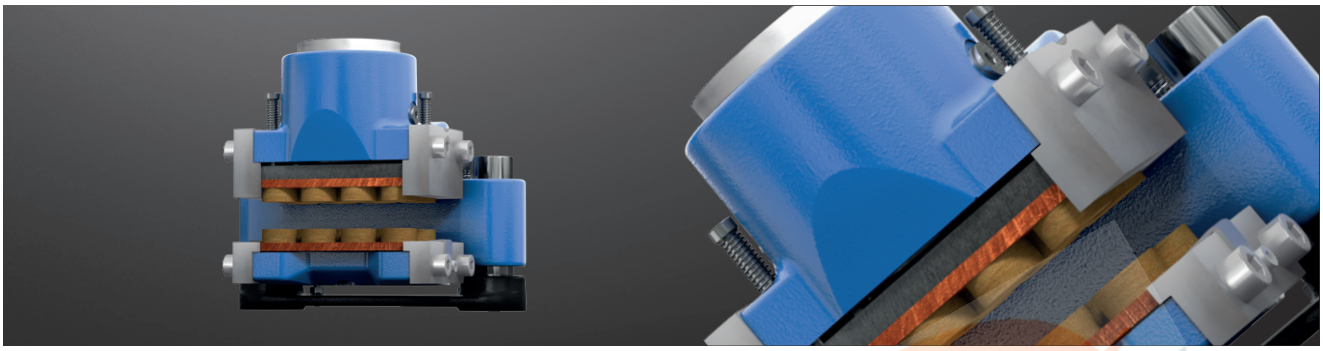
EMB-STOP

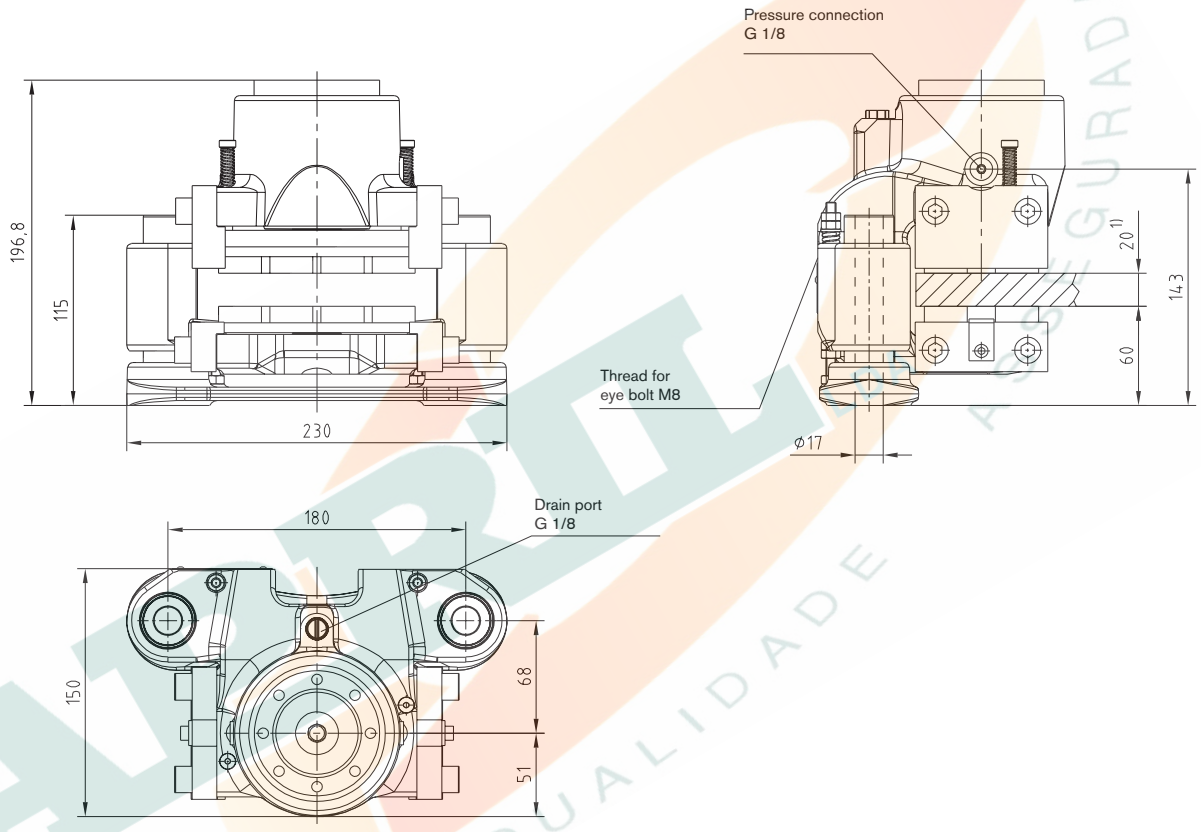


IntelliRamp®

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 bars
Width of brake pad	70 mm	Thickness of brake disk 3)	20 mm, 30 mm
Surface of each brake pad organic	8,000 mm²	Pressure connection	G 1/8
sinter	5,800 mm²	Drain port	G 1/8
Max. wear of each brake pad	5 mm	Floating range on axes - towards mounting surface	5 mm
Rated coefficient of friction 2)	μ = 0.4	Floating range on axes - 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 friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
3) Other thickness of brake disk available on request.

Ordering example:

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

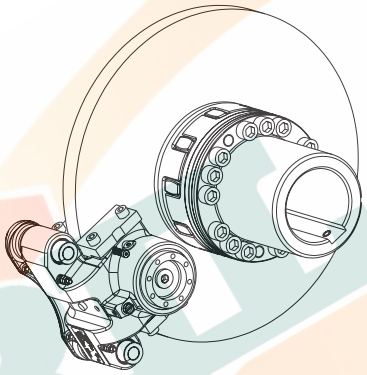
Brake types						
Brake type	Clamping force F_c [kN]	Loss of power [3] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				315	560	800
KTR-STOP® XS-2-F	2	11.0	30	180	370	570
KTR-STOP® XS-3-F	3	5.5	40	270	560	850
KTR-STOP® XS-4-F	4	3.0	50	360	750	1140
KTR-STOP® XS-5-F	5	8.5	70	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)

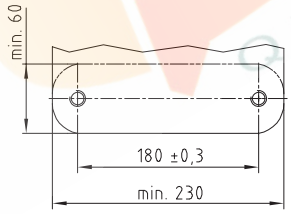
Calculation of brake disk

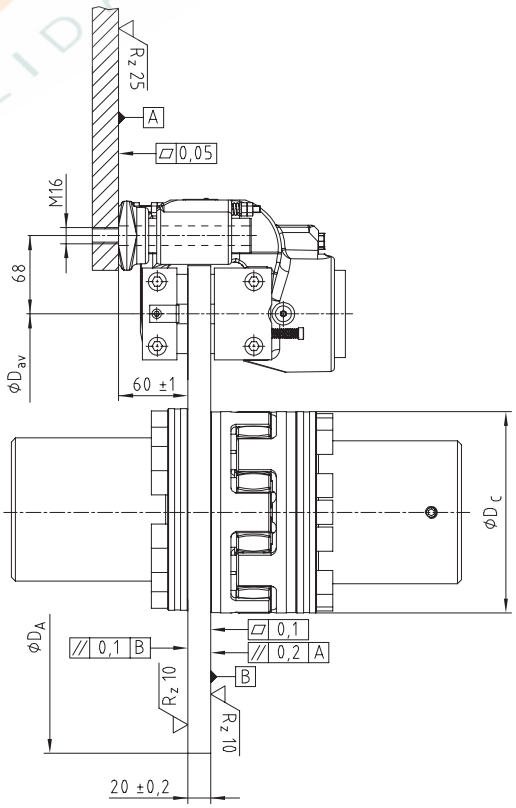
$$D_{C\ max.} = D_A - 195$$

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



Connection dimensions of brake





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

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

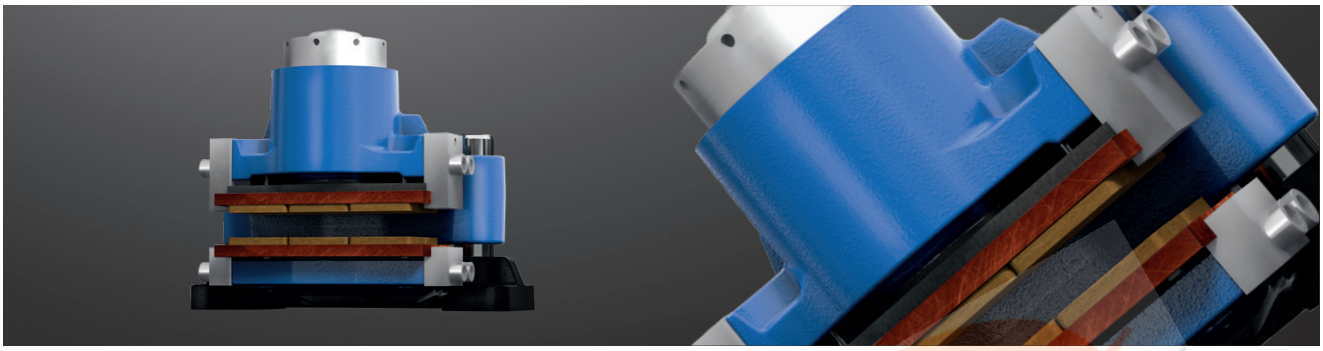
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

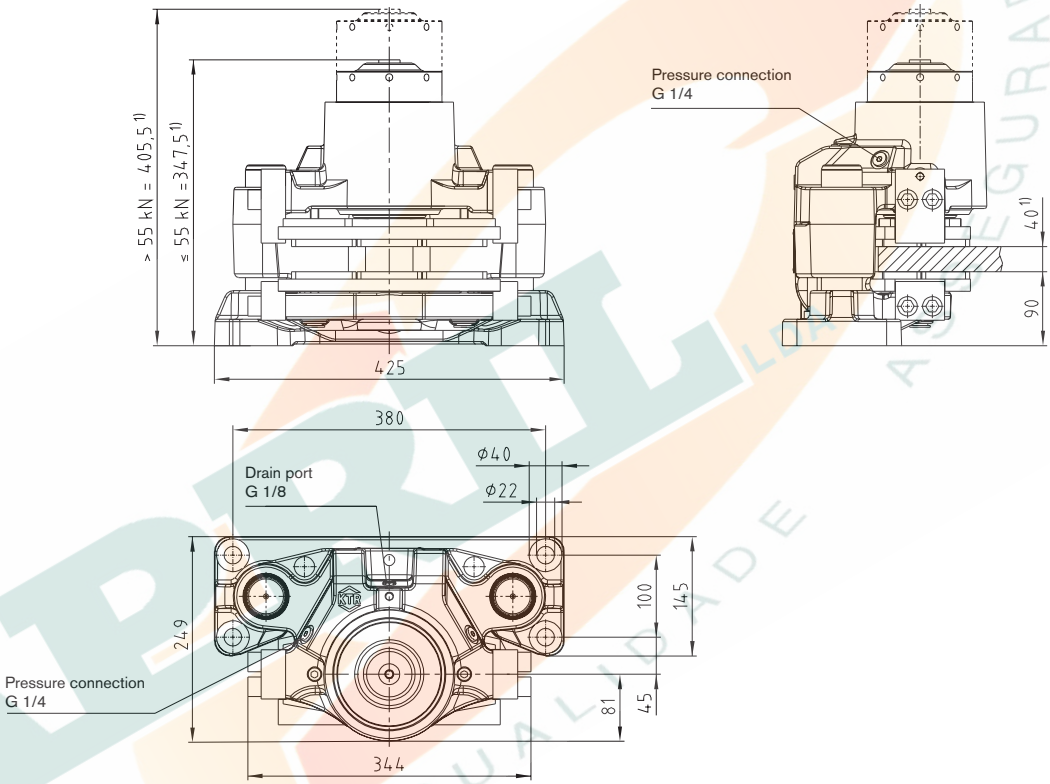
Optional

- 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 10 - 55 kN	Approx. 90 kg [1]	Max. operating pressure	200 bars
Total weight 60 - 80 kN	Approx. 95 kg [1]	Thickness of brake disk [3]	20 mm, 30 mm, 40 mm
Width of brake pad	125 mm	Pressure connection	G 1/4
Surface of each brake pad organic	28,700 mm²	Drain port	G 1/8
sinter	26,800 mm²	Floating range on axes - towards mounting surface	5 mm
Max. wear of each brake pad	6 mm	Floating range on axes - away from mounting surface	10 mm
Rated 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		

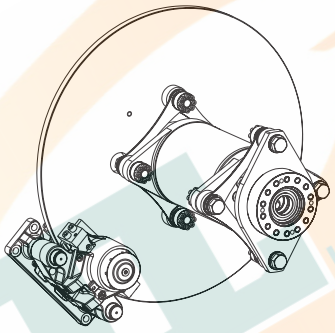
[1] Dimensions and weight depending on thickness of brake disk.
[2] The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[3] Other thickness of brake disk available on request.

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]		
				500	710	1000
KTR-STOP® S-10-F	10	4.5	20	1400	2300	3400
KTR-STOP® S-15-F	15	2.0	30	2200	3400	5200
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

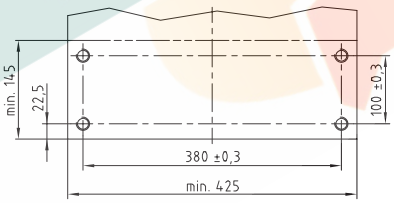
[3] With a stroke of 1 mm (0.5 mm wear of brake pad on each side)

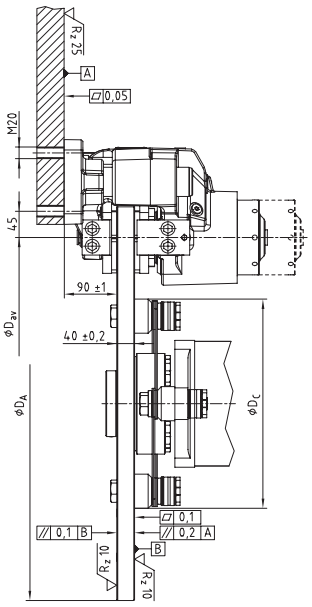


Calculation of brake disk

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





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

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

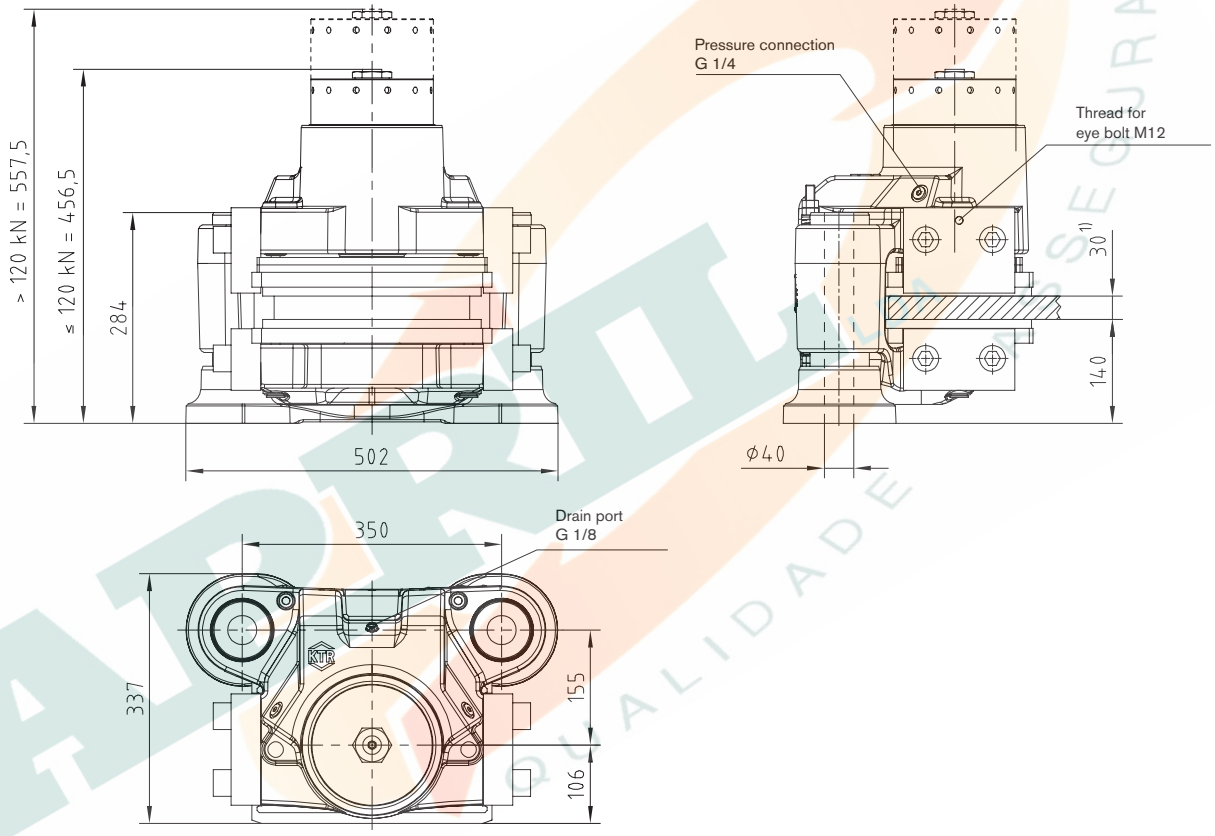
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

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 ≤ 120 kN	Approx. 220 kg [1]	Max. operating pressure	200 bars
Total weight 125 - 180 kN	Approx. 235 kg [1]	Thickness of brake disk [3]	30 mm, 40 mm, 50 mm
Width of brake pad	200 mm	Pressure connection	G 1/4
Surface of each brake pad organic	57,900 mm²	Drain port	G 1/8
sinter	53,500 mm²	Floating range on axes - towards mounting surface	5 mm
Max. wear of each brake pad	8 mm	Floating range on axes - away from mounting surface	below 120 kN = 10 mm
Rated 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

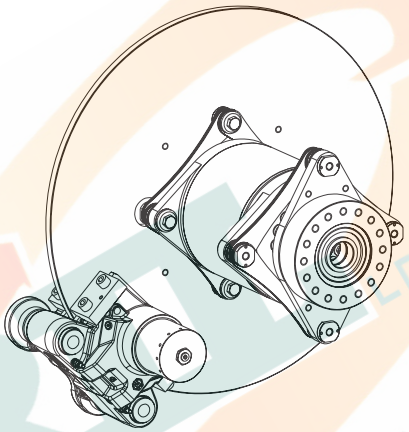
[1] Dimensions and weight depending on thickness of brake disk.
[2] The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[3] Other thickness of brake disk available on request.

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-60-F	60	6.5	60	14400	31200	43200
KTR-STOP® M-70-F	70	5.0	70	16800	36400	50400
KTR-STOP® M-80-F	80	4.0	80	19200	41600	57600
KTR-STOP® M-90-F	90	8.5	100	21600	46800	64800
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)

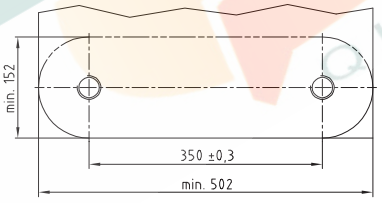


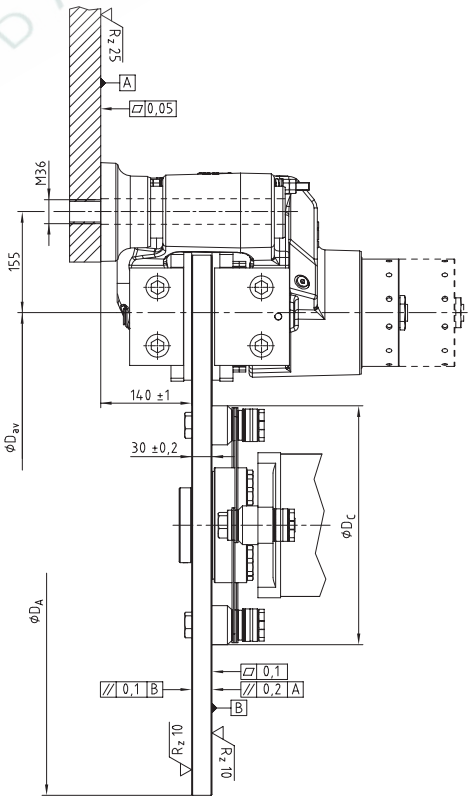
Calculation of brake disk

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

$D_{av} = D_A - 200$

Connection dimensions of brake





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

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

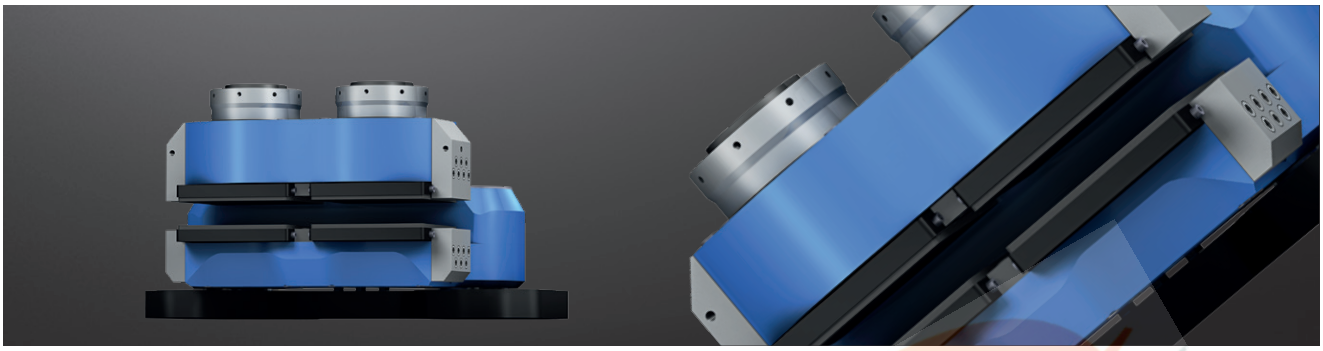
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

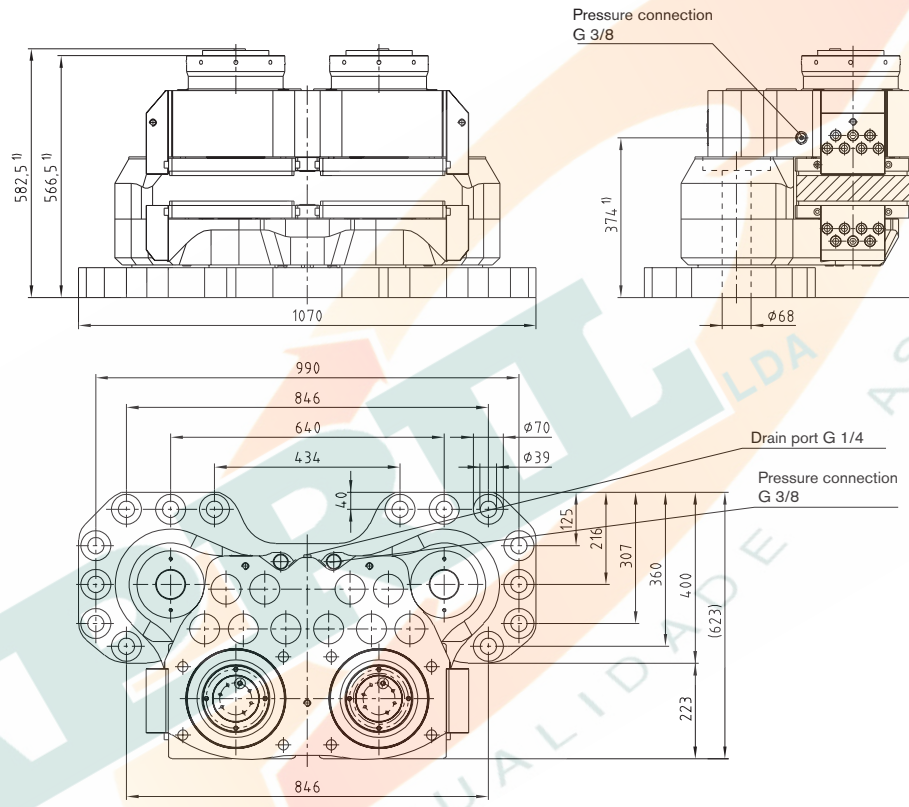
Optional

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

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

Hydraulic brake system





KTR-STOP® XL-xxx-F			
Total weight	Approx. 1080 kg 1)	Thickness of brake disk 3)	40 mm, 60 mm, 80 mm
Width of brake pad	270 mm	Pressure connection	G 3/8
Surface of each brake pad (organic/powder metal)	76,800 mm²	Drain port	G 1/4
Max. wear of each brake pad	6 mm	Floating range on axes - towards mounting surface	5 mm
Rated coefficient of friction 2)	μ = 0.4	Floating range on axes - away from mounting surface	10 mm
Total brake piston surface - complete brake	452 cm²	Min. diameter of brake disk $ØD_A$	1,500 mm
Volume with 1 mm stroke - complete brake	45.2 cm³	Operating temperature	-20 °C to +50 °C
Max. operating pressure	200 bars		

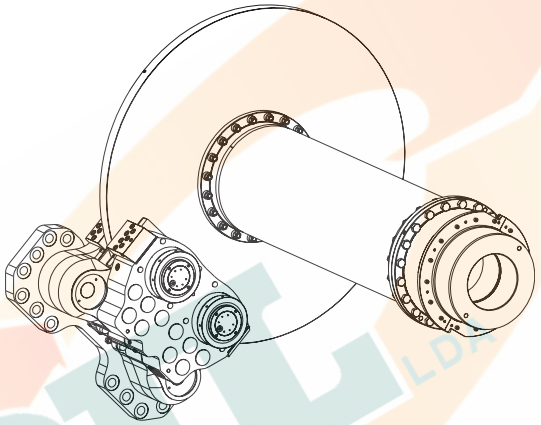
1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
3) Other thickness of brake disk available on request.

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)

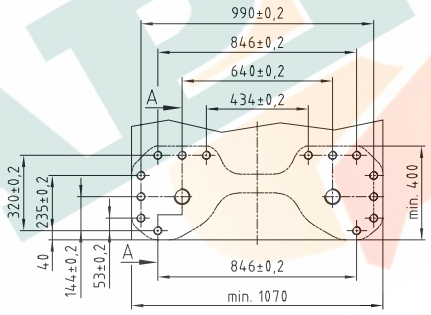


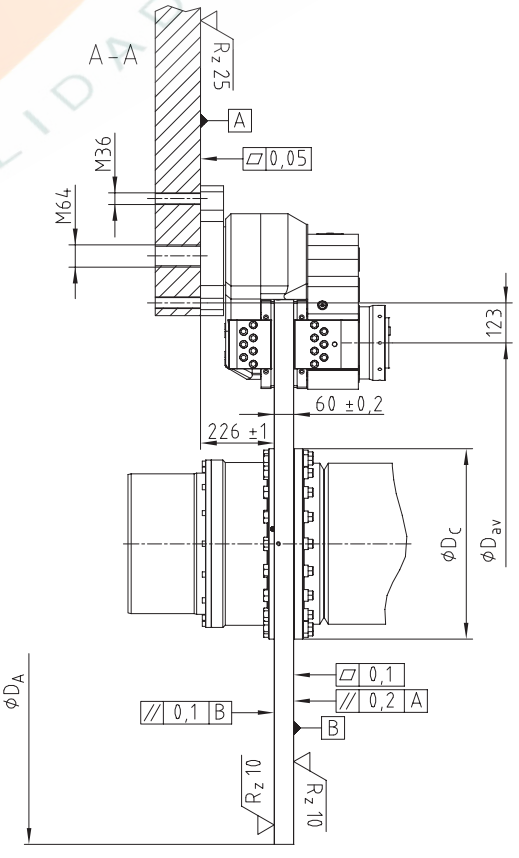
Calculation of brake disk

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

$D_{av} = D_A - 230$

Connection dimensions of brake





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

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

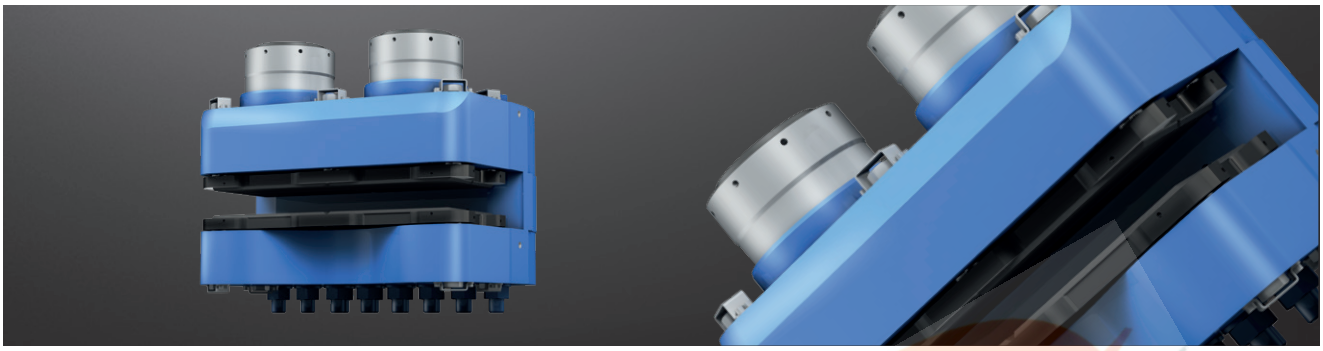
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

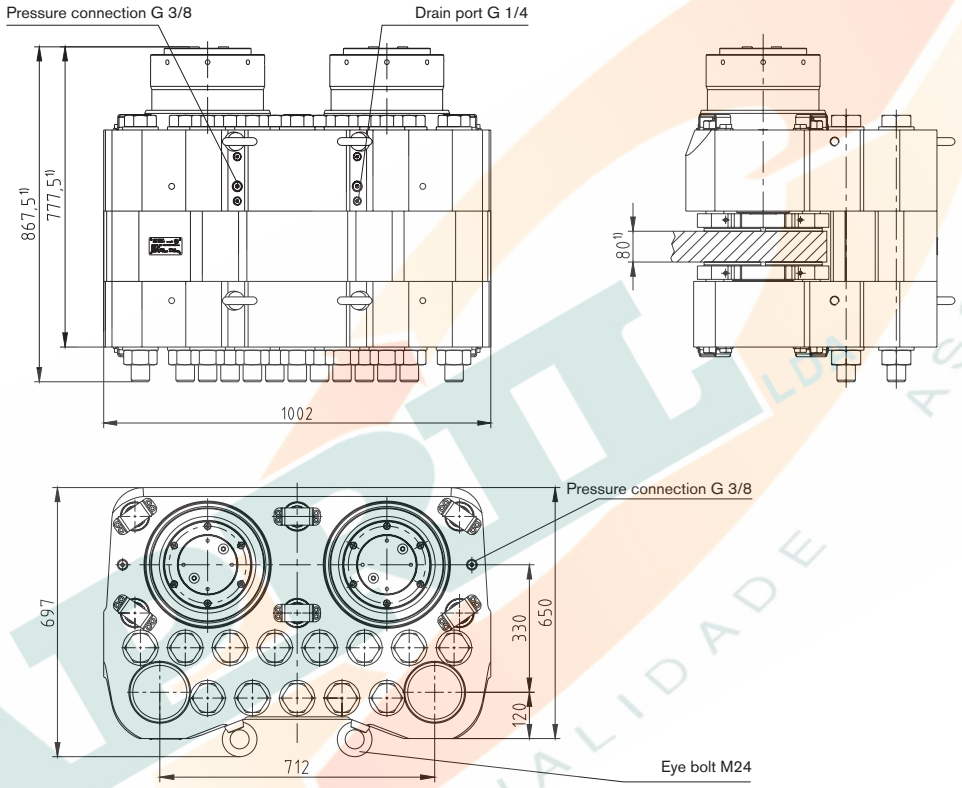
Optional

- 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 bars
Surface of each brake pad organic	238,700 mm²	Thickness of brake disk 3)	60 mm, 80 mm, 100 mm, 120 mm
sinter	-	Pressure connection	G 3/8
Max. wear of each brake pad	8 mm	Drain port	G 1/4
Rated 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

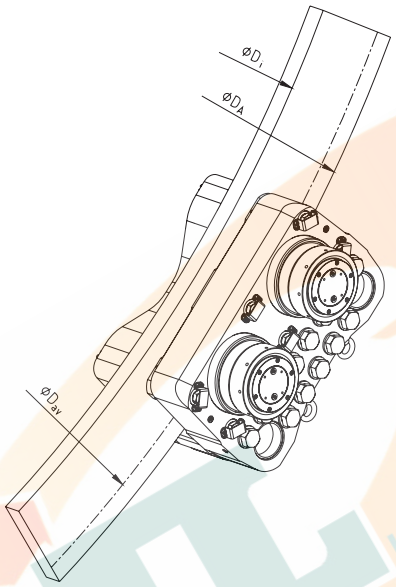
1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
3) Other thickness of brake disk available on request.

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)

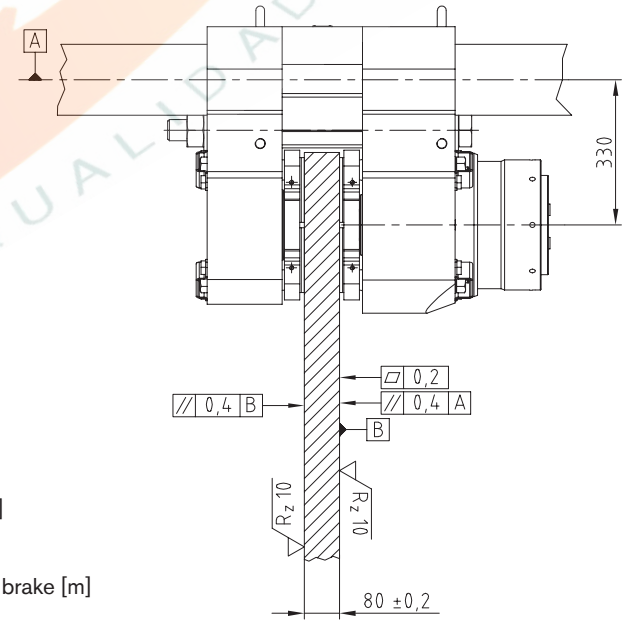


Calculation of brake disk

$$D_{C\ max.} = D_A - 780$$

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

Connection dimensions of brake



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

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

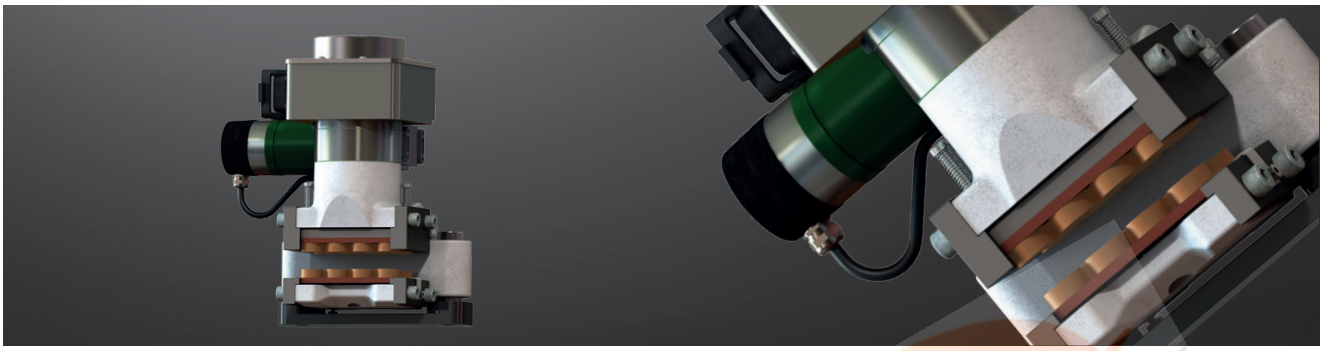
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

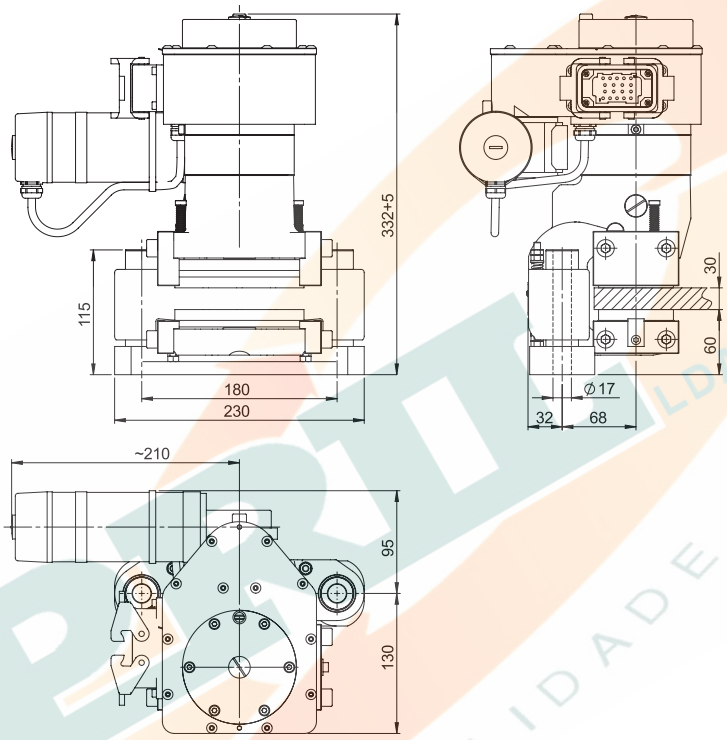
Optional

- 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 [1]		Approx. 28 kg	Floating range on axes - away from mounting surface	5 mm
Width of brake pad		70 mm	Min. diameter of brake disk ØDA	300 mm
Surface of each brake pad	organic	8,000 mm²	Operating temperature	-20 °C to +50 °C
	Sinter metal	5,800 mm²	Closing time	< 0.2 s
Max. wear of each brake pad		5 mm	Release time	3.5 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		6 kN	Motor power	140 W
Max. clamping force		12 kN	Motor voltage	400 VAC, 50 Hz
Power loss with 1mm stroke (0.5 on each side) [4]		~ 10%	Limit switch signals, standard	Released, wear
Thickness of brake disk [3]		20 mm, 30 mm	Power of safety coupling - keeping the brake released	22 W @ 24 VDC
Floating range on axes - towards mounting surface		5 mm		

[1] Weight depending on thickness of brake disk.
[2] The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[3] Other thickness of brake disk available on request.
[4] Each depending on the clamping force.

Calculation of braking force/braking torque

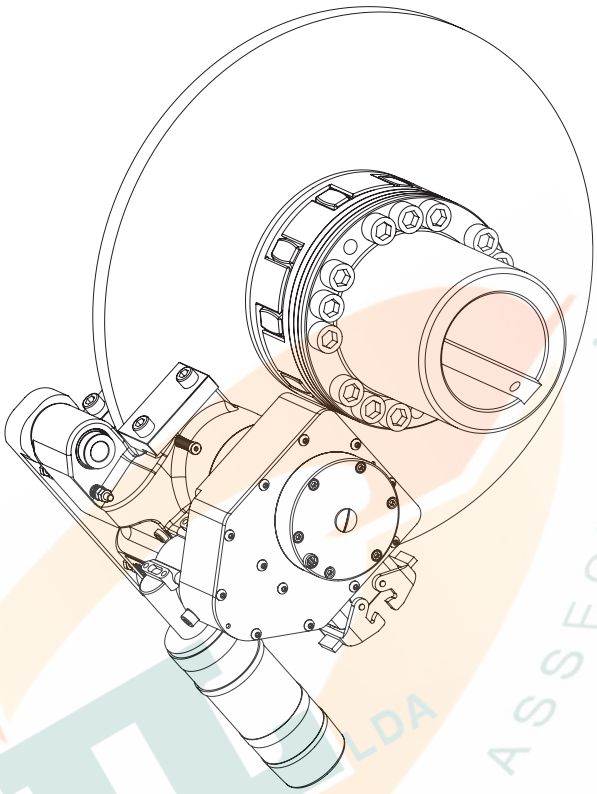
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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		Floater	Variant		Thickness of brake disk

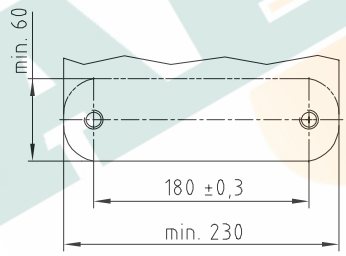


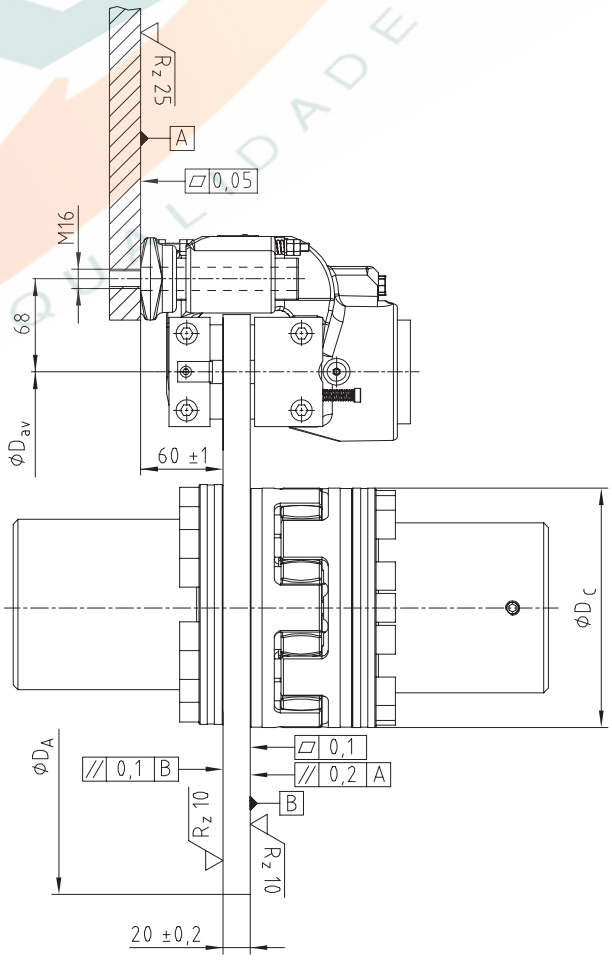
Calculation of brake disk

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

$D_{av} = D_A - 86$

Connection dimensions of brake



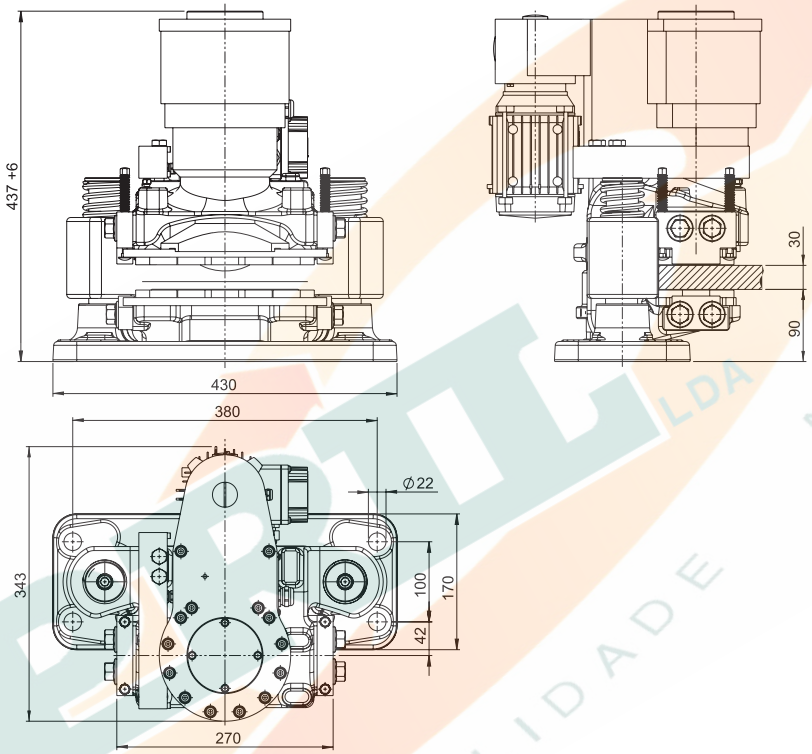


Optional

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

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

Electromechanical brake system



EMB-STOP S-P-xx-F Soft-Braking				
Total weight [1]		Approx. 93 kg	Floating range on axes - away from mounting surface	2 mm
Width of brake pad		95 mm	Min. diameter of brake disk ØDA	500 mm
Surface of each brake pad	organic	19,500 mm²	Operating temperature	-15 °C to +50 °C
	Sinter metal	14,500 mm²	Closing time	0.5 s
Max. wear of each brake pad		5 mm	Release time	3 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		30 kN	Motor power	260 W
Max. clamping force		55 kN	Motor voltage	400 VAC, 50 Hz
Power loss with 1mm stroke (0.5 on each side) [4]		~ 10%	Limit switch signals, standard	Released, wear
Thickness of brake disk [3]		30 mm, 40 mm	Power of safety coupling - keeping the brake released	20 W @ 24 VDC
Floating range on axes - towards mounting surface		2 mm		

[1] Weight depending on thickness of brake disk.
[2] The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[3] Other thickness of brake disk available on request.
[4] Each depending on the clamping force.

Calculation of braking force/braking torque

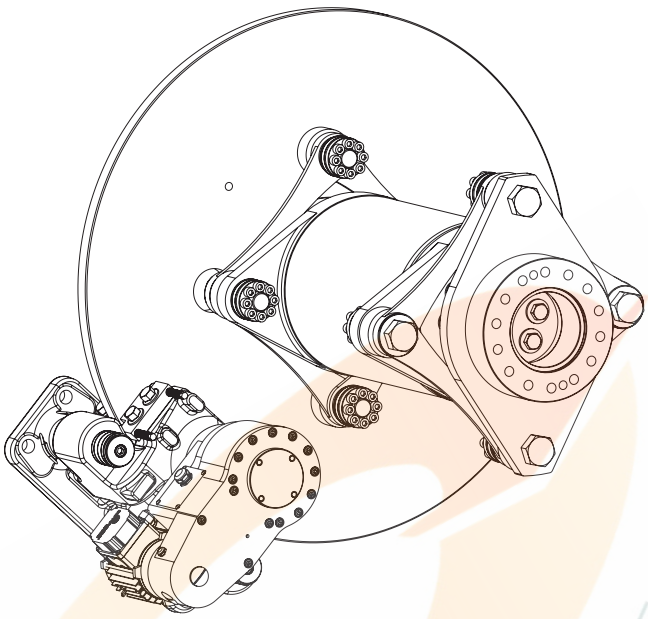
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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:

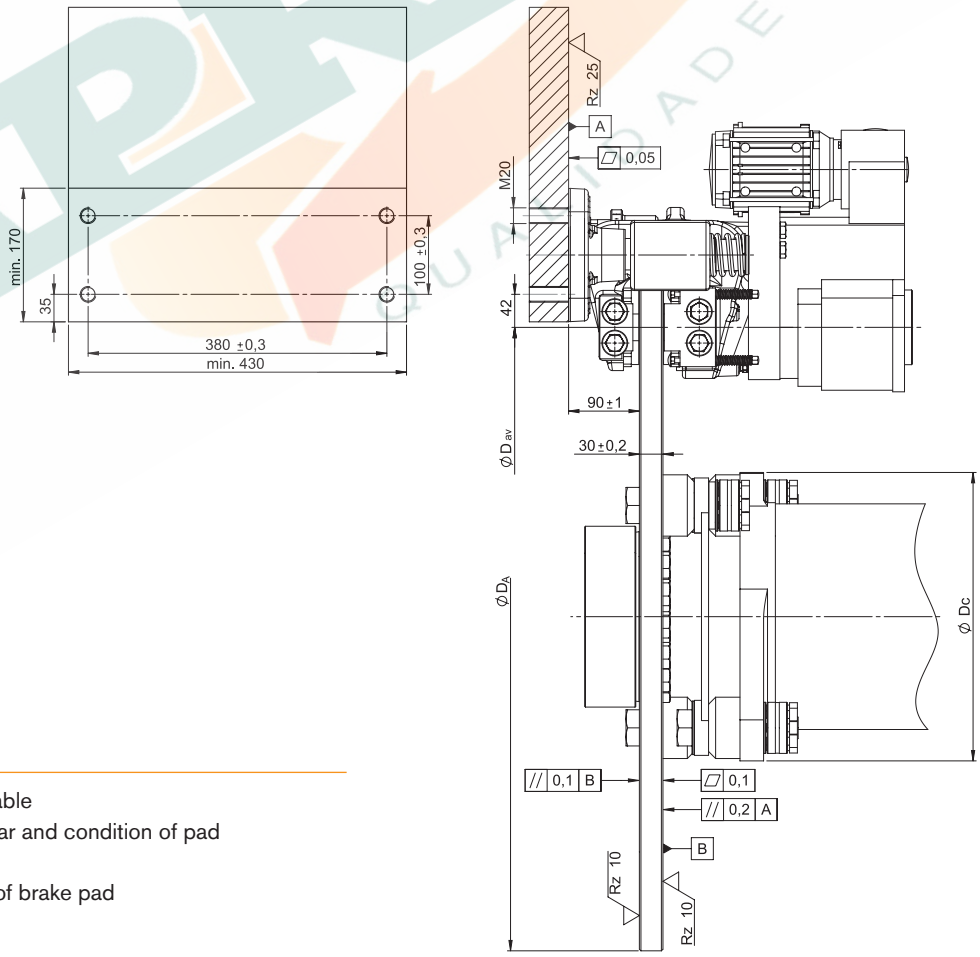
EMB-STOP	S	-	P	-	50	-	F		B	-	30
EMB brake	Size of brake		Passive		Clamping force		Floater		Variant		Thickness of brake disk



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

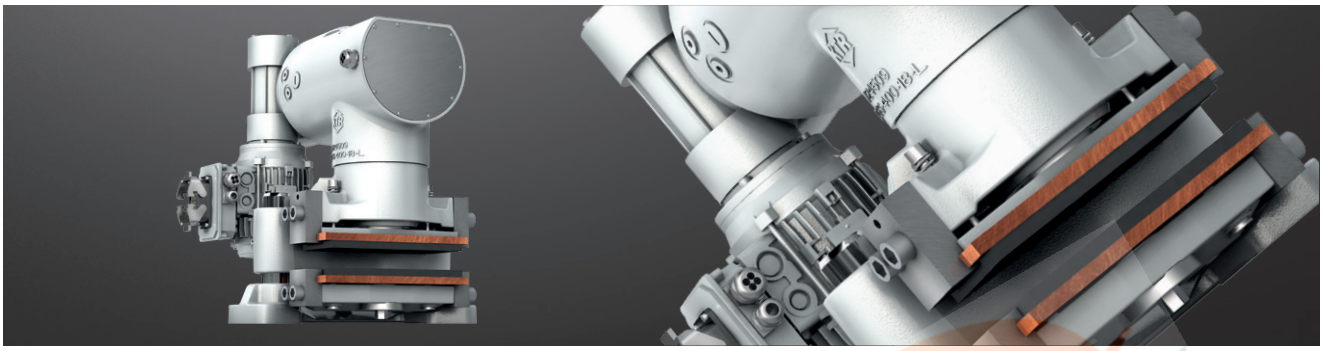


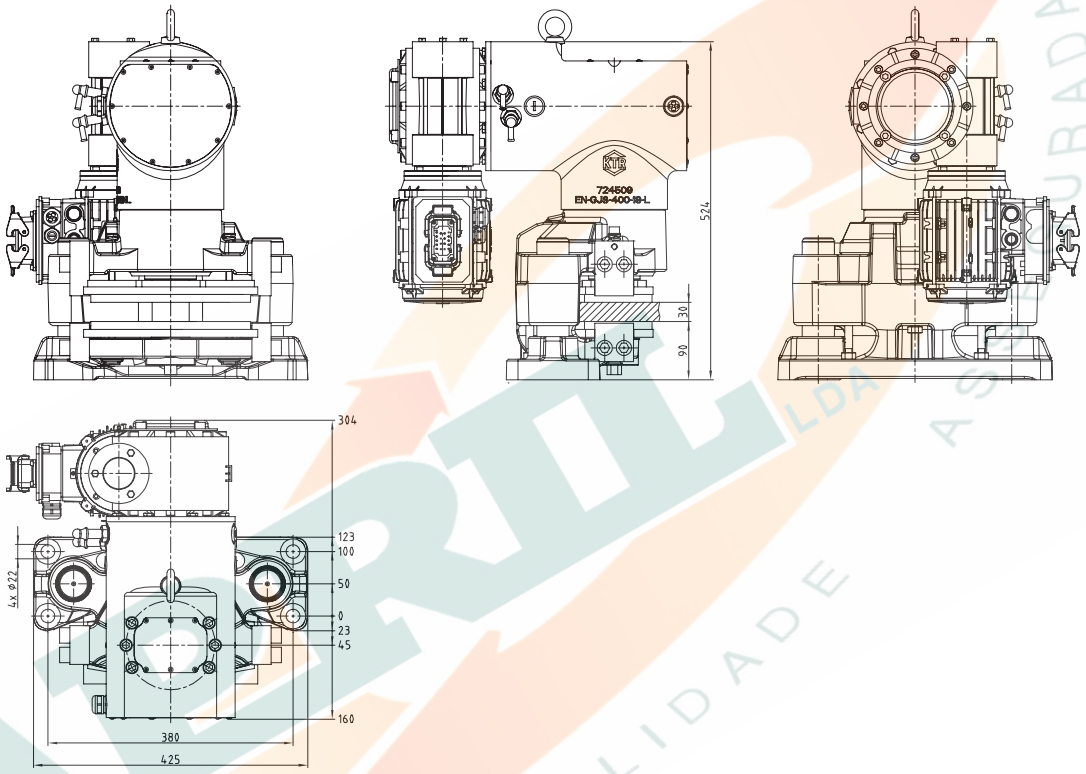
Optional

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

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

Electromechanical brake system





EMB-STOP S-P-xx-F Fast-Braking				
Total weight [1]		Approx. 170 kg	Floating range on axes - away from mounting surface	5 mm
Width of brake pad		110 mm	Min. diameter of brake disk ØDA	500 mm
Surface of each brake pad	organic	28,700 mm²	Operating temperature	-30 °C to +50 °C
	Sinter metal	26,800 mm²	Closing time	< 0.2 s
Max. wear of each brake pad		5 mm	Release time	< 0.5 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		30 kN	Motor power	1.1 kW
Max. clamping force		80 kN	Motor voltage	400 VAC, 50 Hz
Power loss with 1mm stroke (0.5 on each side) [4]		~ 10%	Limit switch signals, standard	Released, wear
Thickness of brake disk [3]		30 mm, 40 mm	Power of safety coupling - keeping the brake released	80 W @ 24 VDC
Floating range on axes - towards mounting surface		5 mm		

[1] Weight depending on thickness of brake disk.
[2] The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[3] Other thickness of brake disk available on request.
[4] Each depending on the clamping force.

Calculation of braking force/braking torque

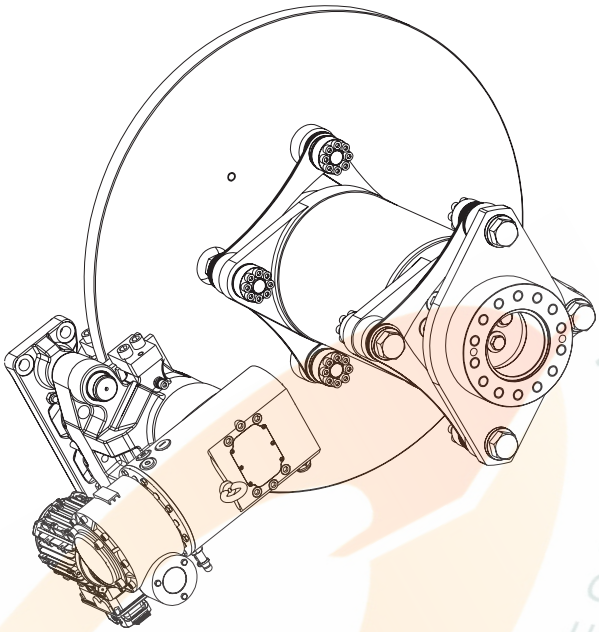
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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:

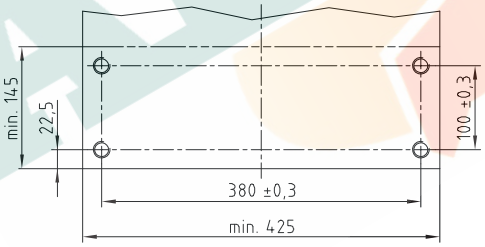
EMB-STOP	S	-	P	-	50	-	F		B	-	30
EMB brake	Size of brake		Passive		Clamping force		Floater		Variant		Thickness of brake disk

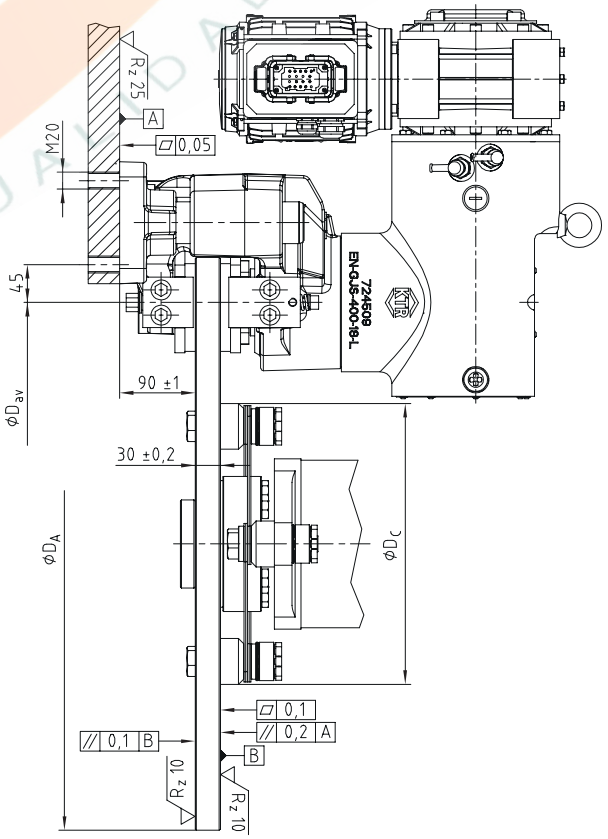


Calculation of brake disk

$ØD_A$ = 500 ... 1000 mm	$ØD_A$ = 1000 ... 1800 mm	$ØD_A$ = 1800 ... 3000 mm
$D_{av} = D_A - 130$	$D_{av} = D_A - 120$	$D_{av} = D_A - 110$
$ØD_{C\ max.} = D_A - 370$		

Connection dimensions of brake



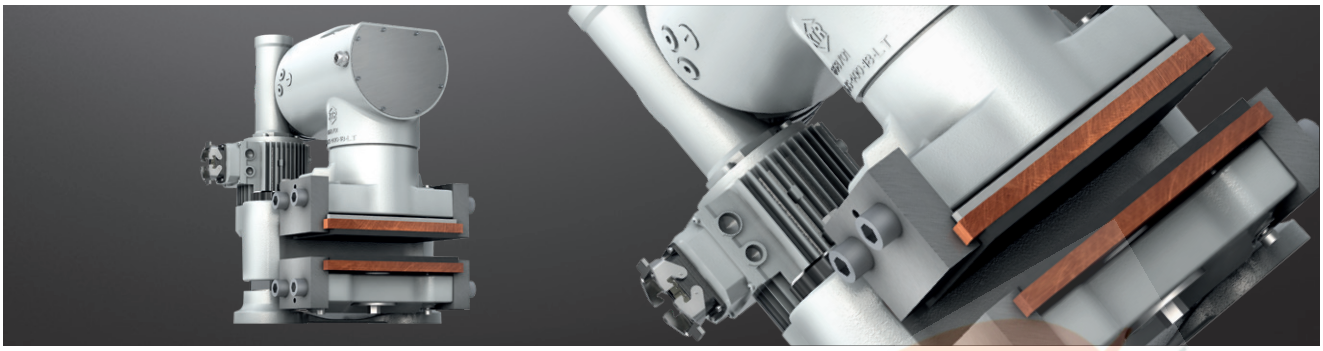


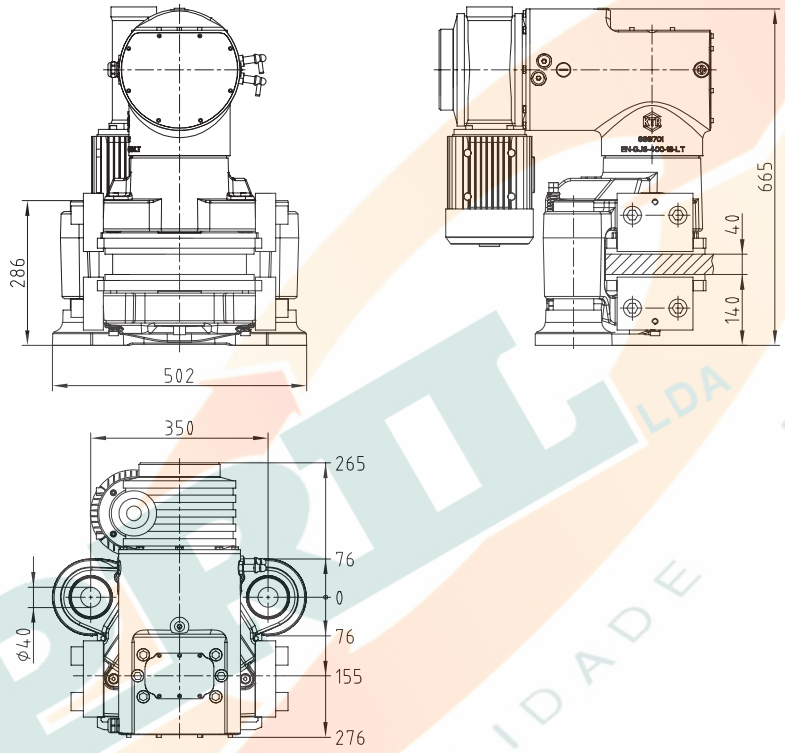
Optional

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

EMB-STOP M-P-xxx-F Fast Braking
Passive floating caliper brakes

Electromechanical brake system





EMB-STOP M-P-xxx-F Fast Braking				
Total weight [1]		Approx. 345 kg	Floating range on axes - away from mounting surface	5 mm
Width of brake pad		200 mm	Min. diameter of brake disk ØDA	800 mm
Surface of each brake pad	organic	57,900 mm²	Operating temperature	-30 °C to +50 °C
	Sinter metal	53,500 mm²	Closing time	< 0.2 s
Max. wear of each brake pad		8 mm	Release time	< 0.5 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		60 kN	Motor power	1.5 kW
Max. clamping force		150 kN	Motor voltage	400 VAC, 50 Hz
Power loss with 1mm stroke (0.5 on each side) [4]		~ 10%	Limit switch signals, standard	Released, wear
Thickness of brake disk [3]		30 mm, 40 mm, 50 mm	Power of safety coupling - keeping the brake released	100 W @ 24 VDC
Floating range on axes - towards mounting surface		5 mm		

[1] Weight depending on thickness of brake disk.
[2] The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[3] Other thickness of brake disk available on request.
[4] Each depending on the clamping force.

Calculation of braking force/braking torque

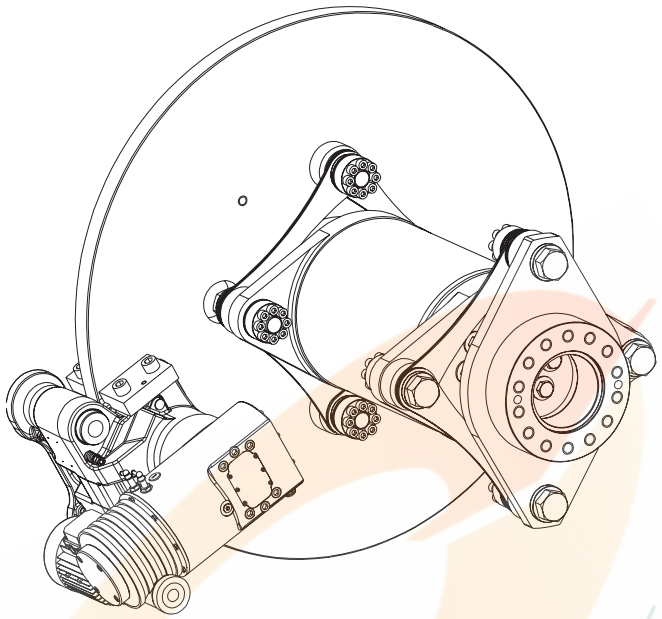
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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	-	P	-	50	-	F		B	-	30
EMB brake	Size of brake		Passive		Clamping force		Floater		Variant		Thickness of brake disk

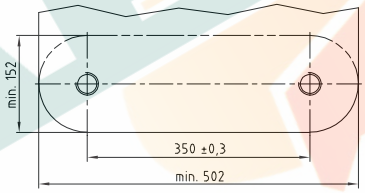


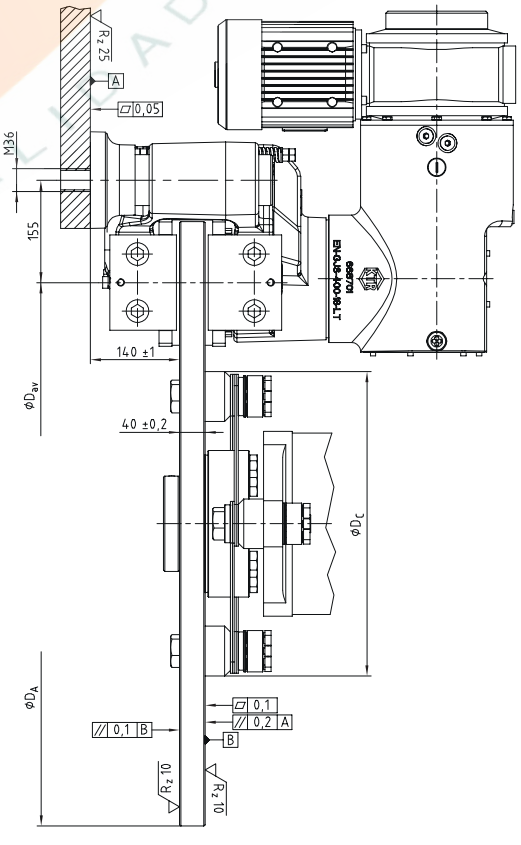
Calculation of brake disk

$D_{av} = D_A - 200$

$D_{C\ max.} = D_A - 420$	$D_{av} = D_A - 110$	$D_{av} = D_A - 105$

Connection dimensions of brake



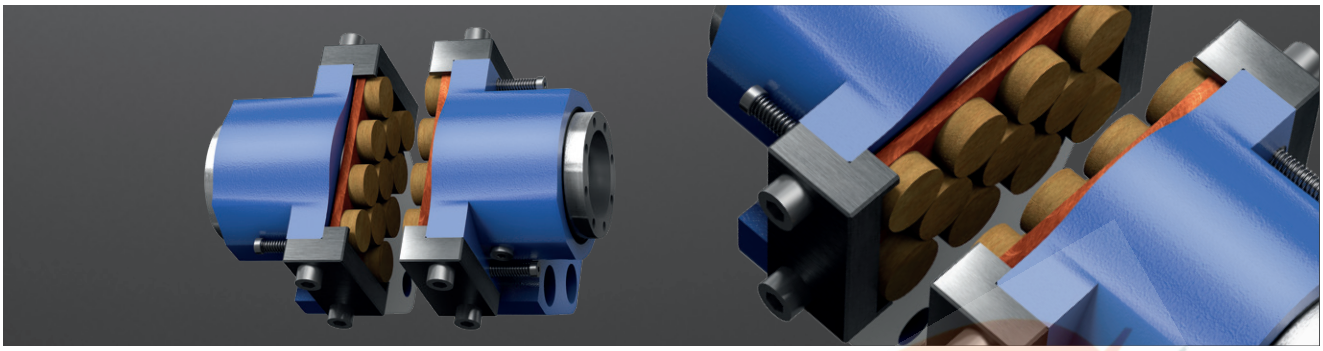


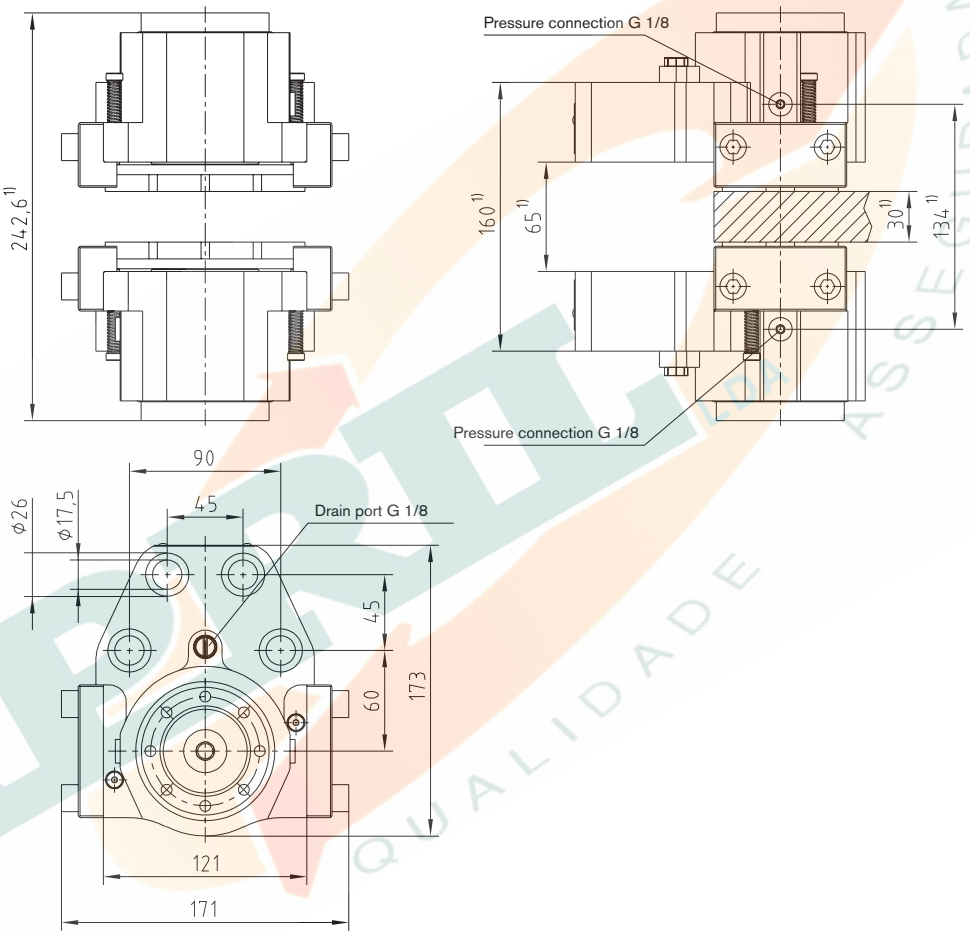
Optional

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

KTR-STOP® XS-xx
Passive fixed caliper brakes

Hydraulic brake system





KTR-STOP® XS-xx			
Total weight	Approx. 20 kg	Volume with 1 mm stroke - complete brake	2.2 cm³
Width of brake pad	70 mm	Max. operating pressure	200 bars
Surface of each brake pad organic	8,000 mm²	Min. thickness of brake disk	20 mm
sinter	5,800 mm²	Pressure connection	G 1/8
Max. wear of each brake pad	5 mm	Drain port	G 1/8
Rated coefficient of friction 2)	μ = 0.4	Min. diameter of brake disk $ØD_A$	300 mm
Total brake piston surface - complete brake	22 cm²	Operating temperature	-20 °C to +50 °C

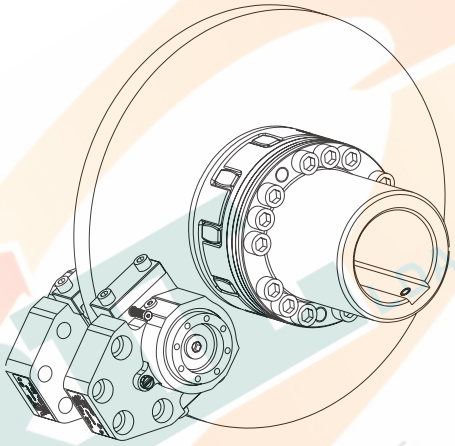
1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	XS - 6	A - 30 - 65		
KTR brake	Size of brake	Clamping force	Variant	Thickness of brake disk	Thickness of stand

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	2	11.0	30	180	370	570
KTR-STOP® XS-3	3	5.5	40	270	560	850
KTR-STOP® XS-4	4	3.0	50	360	750	1140
KTR-STOP® XS-5	5	8.5	70	450	940	1420
KTR-STOP® XS-6	6	6.5	80	540	1130	1710
KTR-STOP® XS-7	7	4.5	90	640	1320	1990
KTR-STOP® XS-8	8	16.5	120	730	1510	2280
KTR-STOP® XS-9	9	12.0	130	820	1700	2570
KTR-STOP® XS-10	10	10.0	140	910	1890	2850
KTR-STOP® XS-11	11	8.5	150	1000	2080	3140
KTR-STOP® XS-12	12	11.0	160	1090	2270	3420
KTR-STOP® XS-13	13	9.5	170	1190	2460	3710
KTR-STOP® XS-14	14	8.5	180	1280	2650	3990
KTR-STOP® XS-15	15	8.0	190	1370	2840	4280

[3] With a stroke of 1 mm (1 mm wear of brake pad)

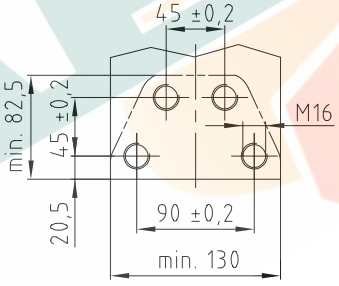


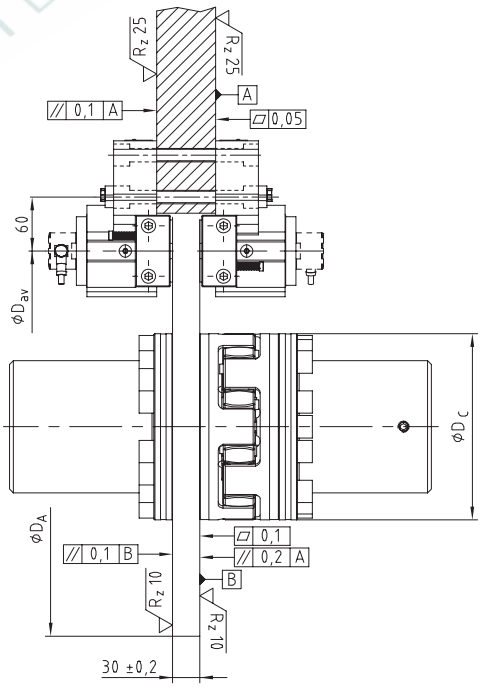
Calculation of brake disk

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

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

Connection dimensions of brake





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

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

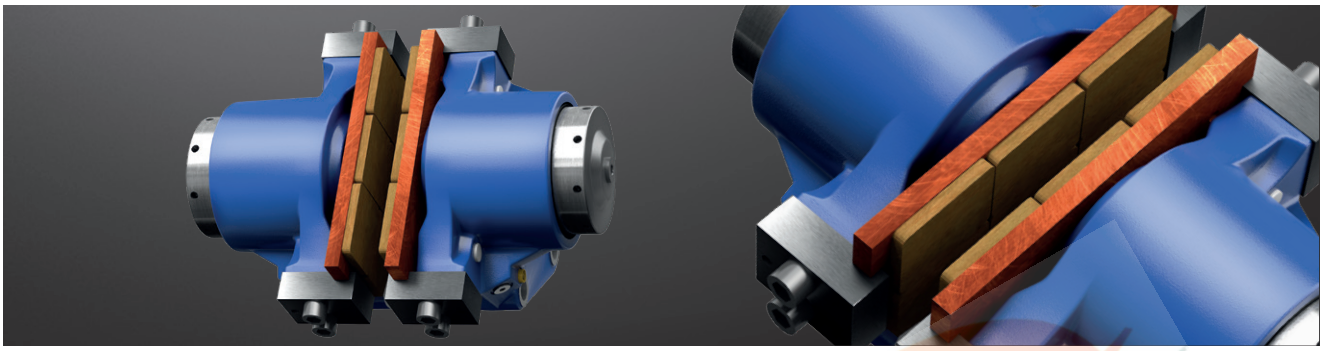
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

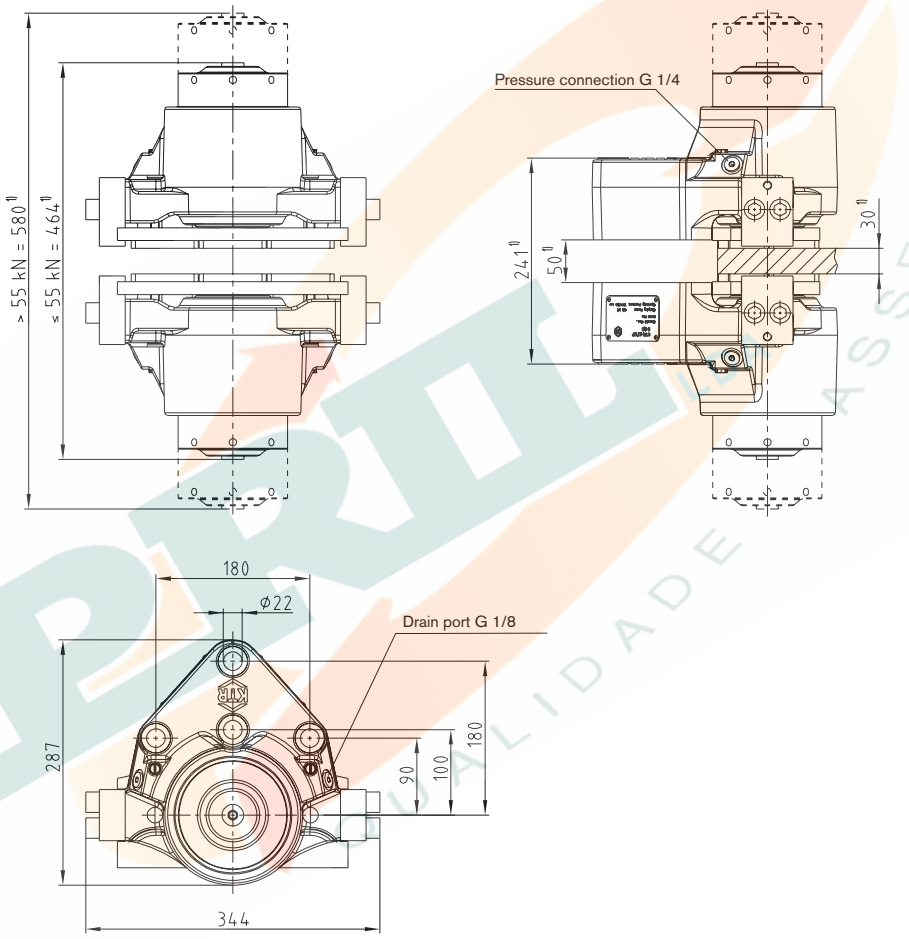
Optional

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

KTR-STOP® S-xx
Passive fixed caliper brakes

Hydraulic brake system





KTR-STOP® S-xx			
Total weight 10 - 55 kN	Approx. 95 kg	Volume with 1 mm stroke - complete brake	13.8 cm³
Total weight 60 - 80 kN	Approx. 100 kg	Max. operating pressure	200 bars
Width of brake pad	125 mm	Min. thickness of brake disk	20 mm
Surface of each brake pad organic	28,700 mm²	Pressure connection	G 1/4
sinter	26,800 mm²	Drain port	G 1/8
Max. wear of each brake pad	6 mm	Min. diameter of brake disk ØD$_A$	500 mm
Rated coefficient of friction 2)	μ = 0.4	Operating temperature	-20 °C to +50 °C
Total brake piston surface - complete brake	138 cm²		

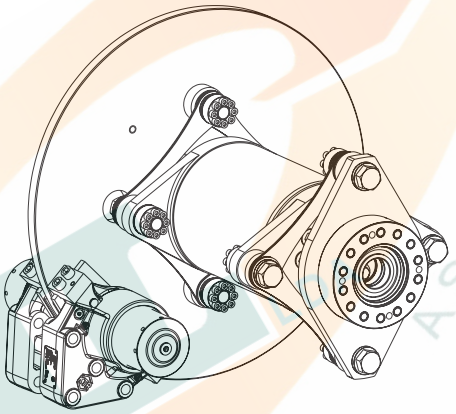
1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	S	-	40	B	-	30	-	50
KTR brake	Size of brake		Clamping force	Variant		Thickness of brake disk		Thickness of stand

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]		
				500	710	1000
KTR-STOP® S-10	10	4.5	20	1400	2300	3400
KTR-STOP® S-15	15	2	30	2200	3400	5200
KTR-STOP® S-20	20	4.5	40	2900	4600	6900
KTR-STOP® S-25	25	5.0	50	3700	5800	8700
KTR-STOP® S-30	30	3.5	60	4400	6900	10400
KTR-STOP® S-35	35	8.0	80	5100	8100	12100
KTR-STOP® S-40	40	6.5	90	5900	9200	13900
KTR-STOP® S-45	45	6.0	100	6600	10400	15600
KTR-STOP® S-50	50	5.5	100	7400	11600	17400
KTR-STOP® S-55	55	5.0	110	8100	12700	19100
KTR-STOP® S-60	60	7.0	130	8800	13900	20800
KTR-STOP® S-65	65	6.0	140	9600	15000	22600
KTR-STOP® S-70	70	5.0	150	10300	16200	24300
KTR-STOP® S-75	75	4.5	160	11100	17400	26100
KTR-STOP® S-80	80	5.0	170	11800	18500	27800

[3] With a stroke of 1 mm (1 mm wear of brake pad)



Calculation of brake disk

up to $ØD_A$ = 1500 mm

$$D_{C\ max.} = D_A - 300$$

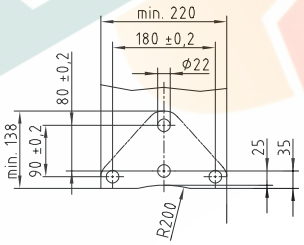
$$D_{av} = D_A - 125$$

from $ØD_A$ = 1500 mm

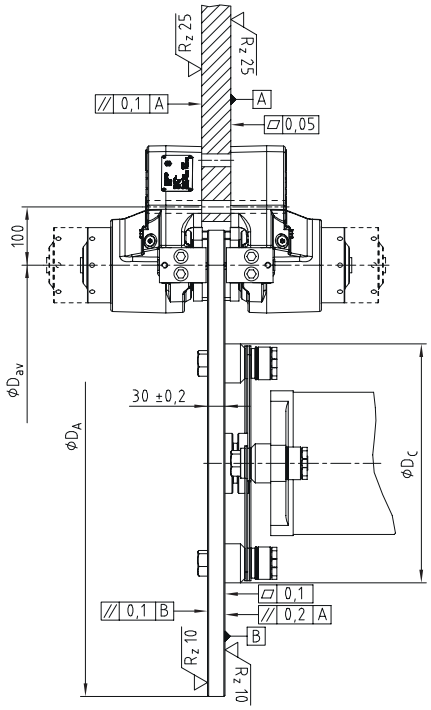
$$D_{C\ max.} = D_A - 295$$

$$D_{av} = D_A - 120$$

Connection dimensions of brake



Other dimensions available on request



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

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

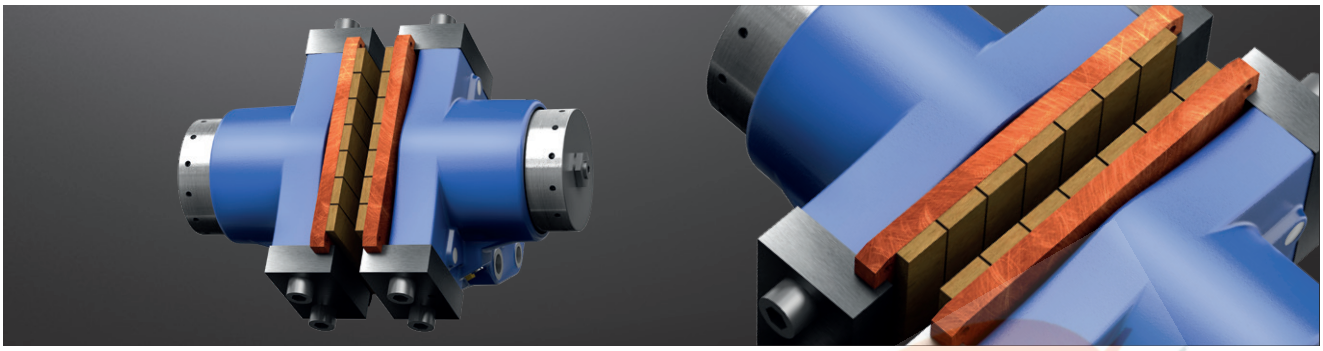
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

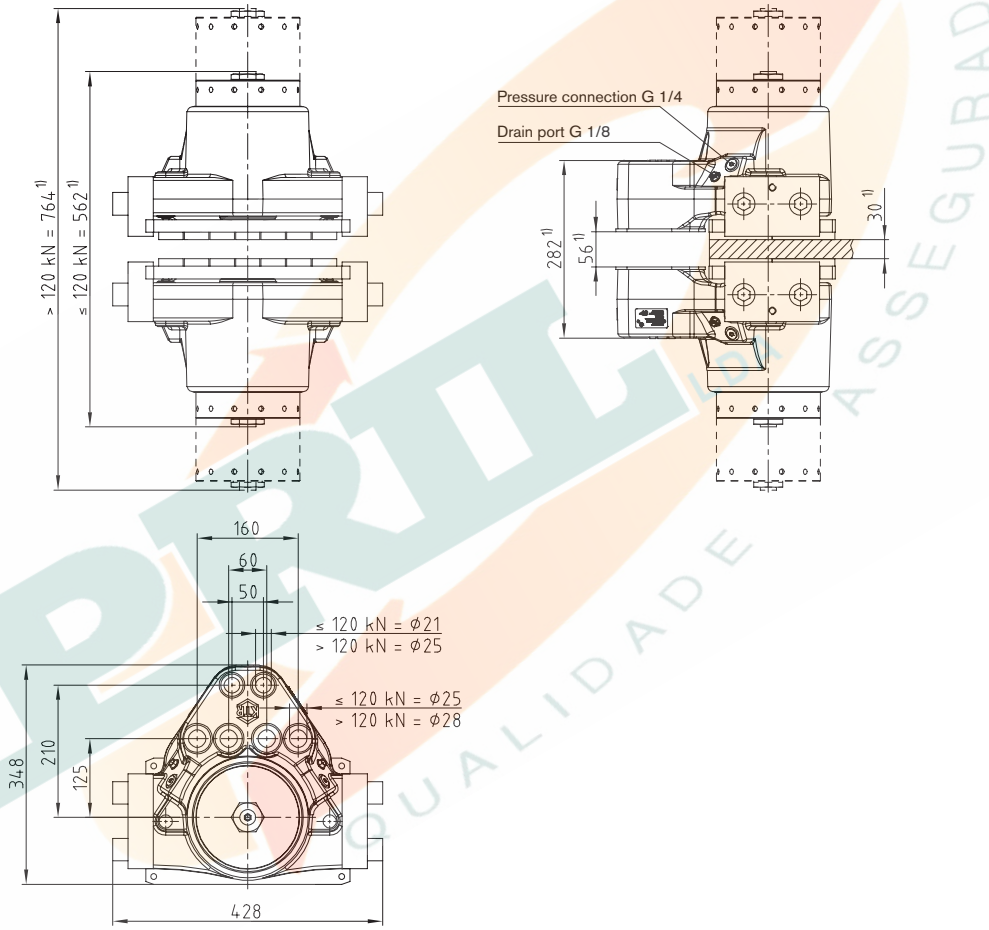
Optional

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

KTR-STOP® M-xxx
Passive fixed caliper brakes

Hydraulic brake system





KTR-STOP® M-xxx				
Total weight ≤ 120 kN		Approx. 200 kg	Volume with 1 mm stroke - complete brake	27.48 cm³
Total weight 125 - 180 kN		Approx. 215 kg	Max. operating pressure	200 bars
Width of brake pad		200 mm	Min. thickness of brake disk	30 mm
Surface of each brake pad	organic	57,900 mm²	Pressure connection	G 1/4
	sinter	53,500 mm²	Drain port	G 1/8
Max. wear of each brake pad		10 mm	Min. diameter of brake disk ØD$_A$	800 mm
Rated coefficient of friction 2)		μ = 0.4	Operating temperature	-20 °C to +50 °C
Total brake piston surface - complete brake		274.8 cm²		

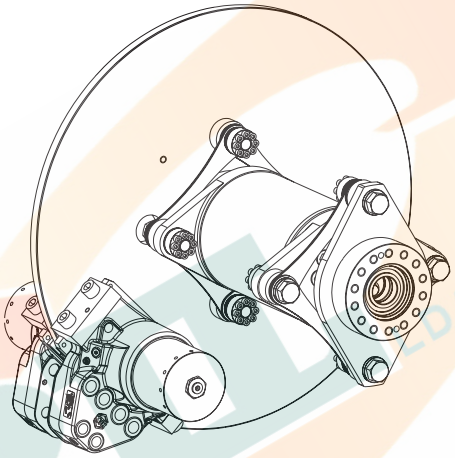
1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	M	-	100	B	-	40	-	66
KTR brake	Size of brake		Clamping force	Variant		Thickness of brake disk		Thickness of stand

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-60	60	6.5	60	14400	31200	43200
KTR-STOP® M-70	70	5.0	70	16800	36400	50400
KTR-STOP® M-80	80	4.0	80	19200	41600	57600
KTR-STOP® M-90	90	8.5	100	21600	46800	64800
KTR-STOP® M-100	100	7.0	110	24000	52000	72000
KTR-STOP® M-110	110	6.5	120	26400	57200	79200
KTR-STOP® M-120	120	8.5	130	28800	62400	86400
KTR-STOP® M-130	130	5.0	140	31200	67600	93600
KTR-STOP® M-140	140	4.5	150	33600	72800	100800
KTR-STOP® M-150	150	7.5	165	36000	78000	108000
KTR-STOP® M-160	160	7.0	180	38400	83200	115200
KTR-STOP® M-170	170	6.5	190	40800	88400	122400
KTR-STOP® M-180	180	6.0	190	43200	93600	129600

[3] With a stroke of 1 mm (1 mm wear of brake pad)

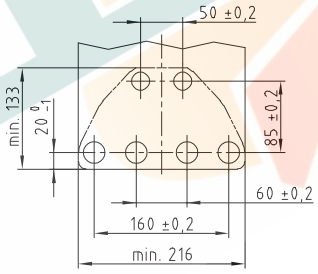


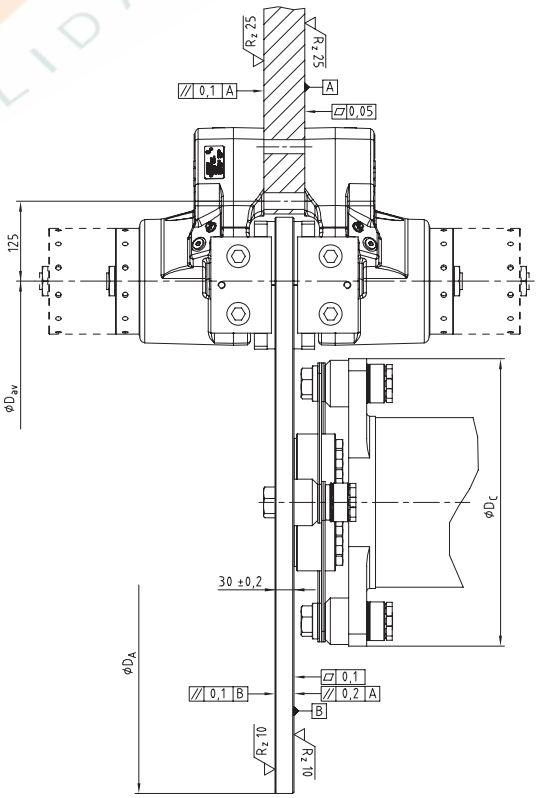
Calculation of brake disk

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

$D_{av} = D_A - 200$

Connection dimensions of brake





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

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

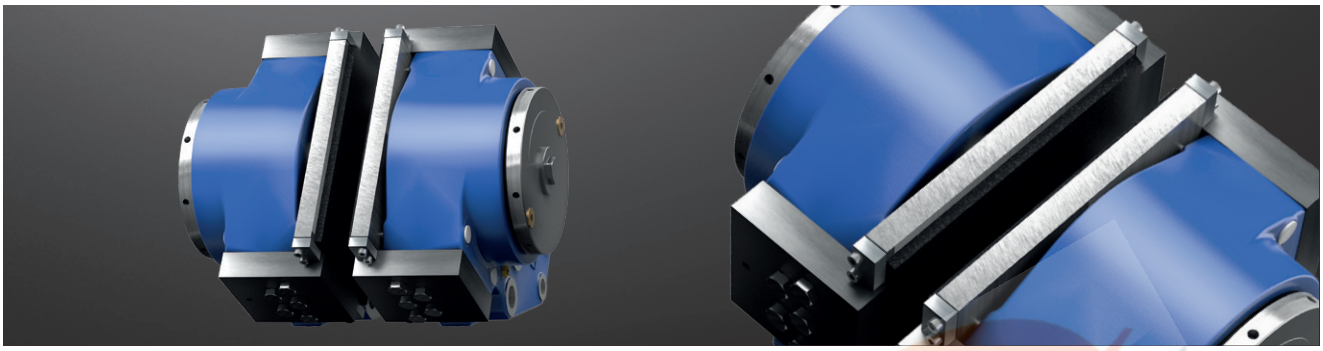
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

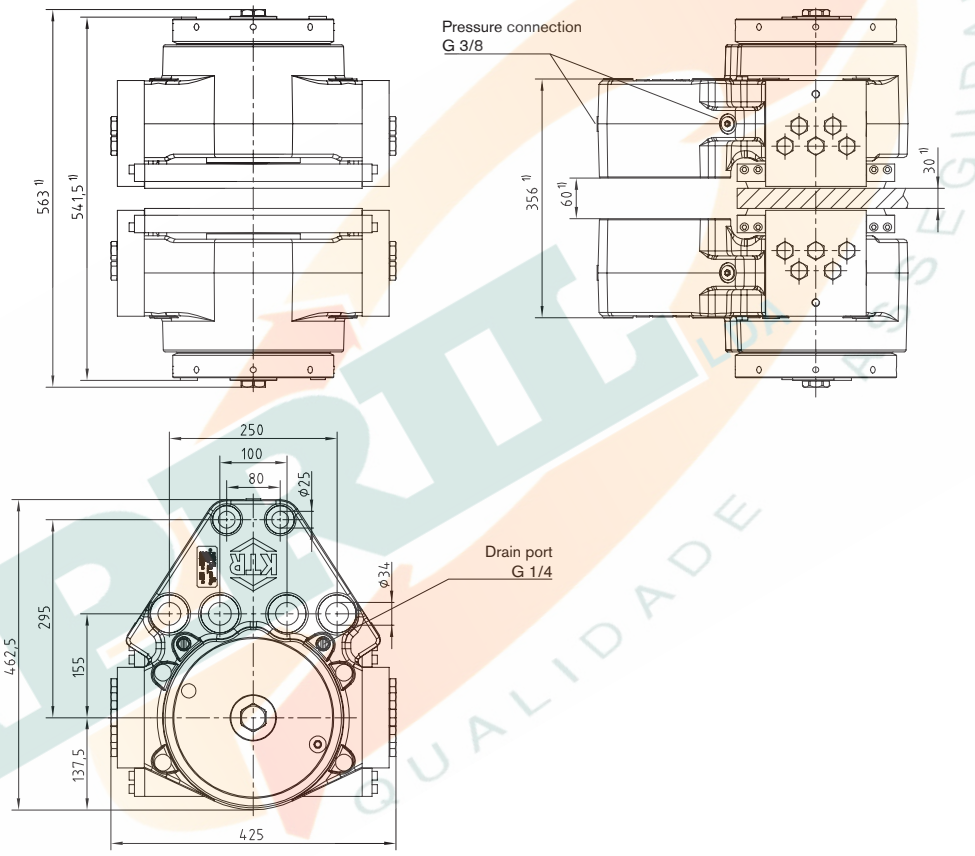
Optional

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

KTR-STOP® L light-xxx
Passive fixed caliper brakes

Hydraulic brake system





KTR-STOP® L light-xxx			
Total weight	Approx. 312 kg	Max. operating pressure	200 bars
Width of brake pad	324 mm	Min. thickness of brake disk	30 mm
Surface of each brake pad	65,600 mm²	Pressure connection	G 3/8
Max. wear of each brake pad	10 mm	Drain port	G 1/4
Rated coefficient of friction 2)	μ = 0.4	Min. diameter of brake disk $ØD_A$	1000 mm
Total brake piston surface - complete brake	279.2 cm²	Operating temperature	-20 °C to +50 °C
Volume with 1 mm stroke - complete brake	27.92 cm³		

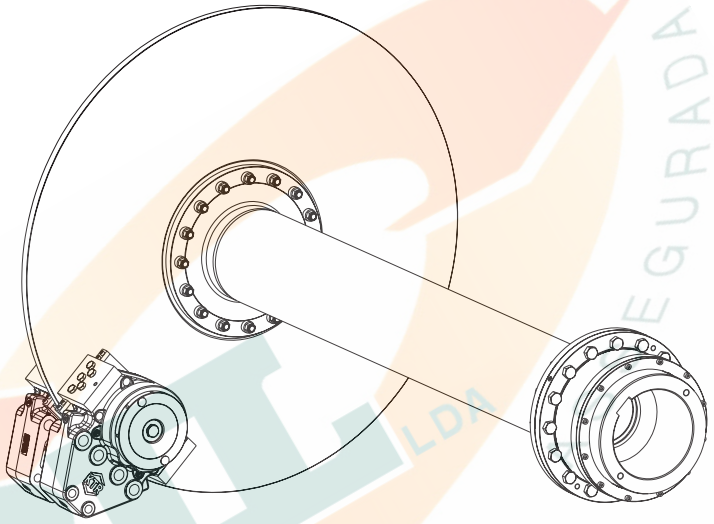
1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	L light	-	200	A	-	30	-	60
KTR brake	Size of brake		Clamping force	Variant		Thickness of brake disk		Thickness of stand

Brake types						
Brake type	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 light-100	100	4.0	95	30800	70800	110800
KTR-STOP® L light-120	120	3.5	105	36900	84900	132900
KTR-STOP® L light-140	140	8.5	130	43100	99100	155100
KTR-STOP® L light-160	160	8.0	170	49200	113200	177200
KTR-STOP® L light-180	180	8.0	175	55400	127400	199400
KTR-STOP® L light-200	200	7.5	185	61600	141600	221600
KTR-STOP® L light-220	220	6.5	200	67700	155700	243700

[4] With a stroke of 1 mm (1 mm wear of brake pad)

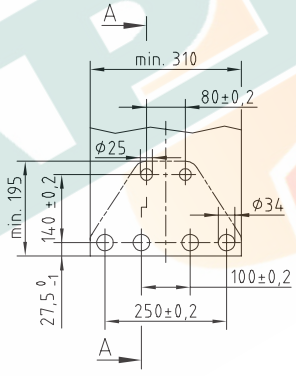


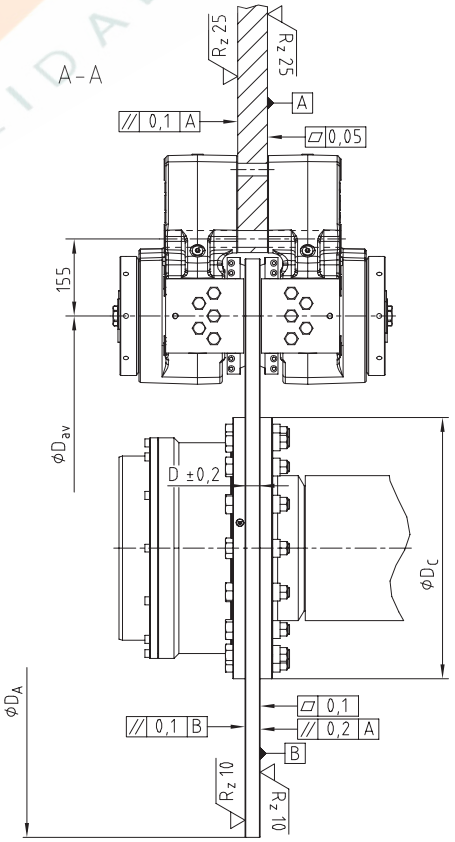
Calculation of brake disk

$$D_{C\ max.} = D_A - 510$$

$$D_{av} = D_A - 220$$

Connection dimensions of brake





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

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

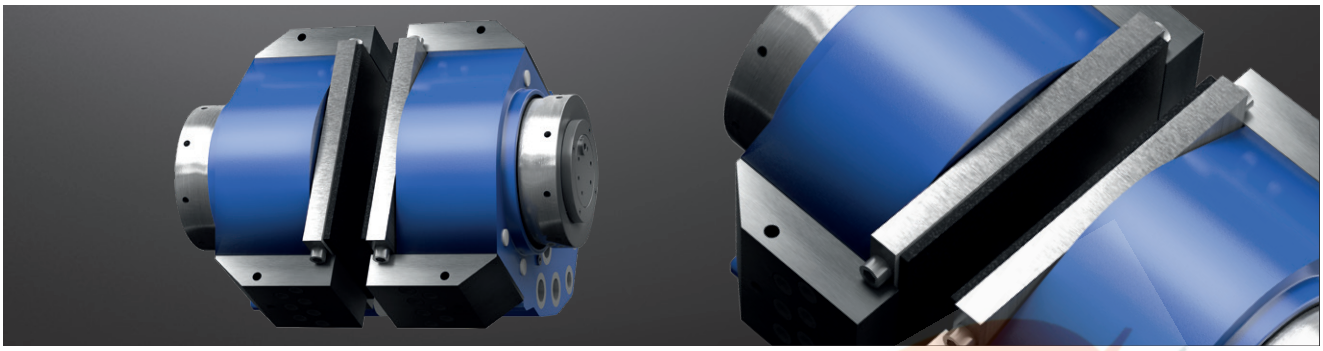
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

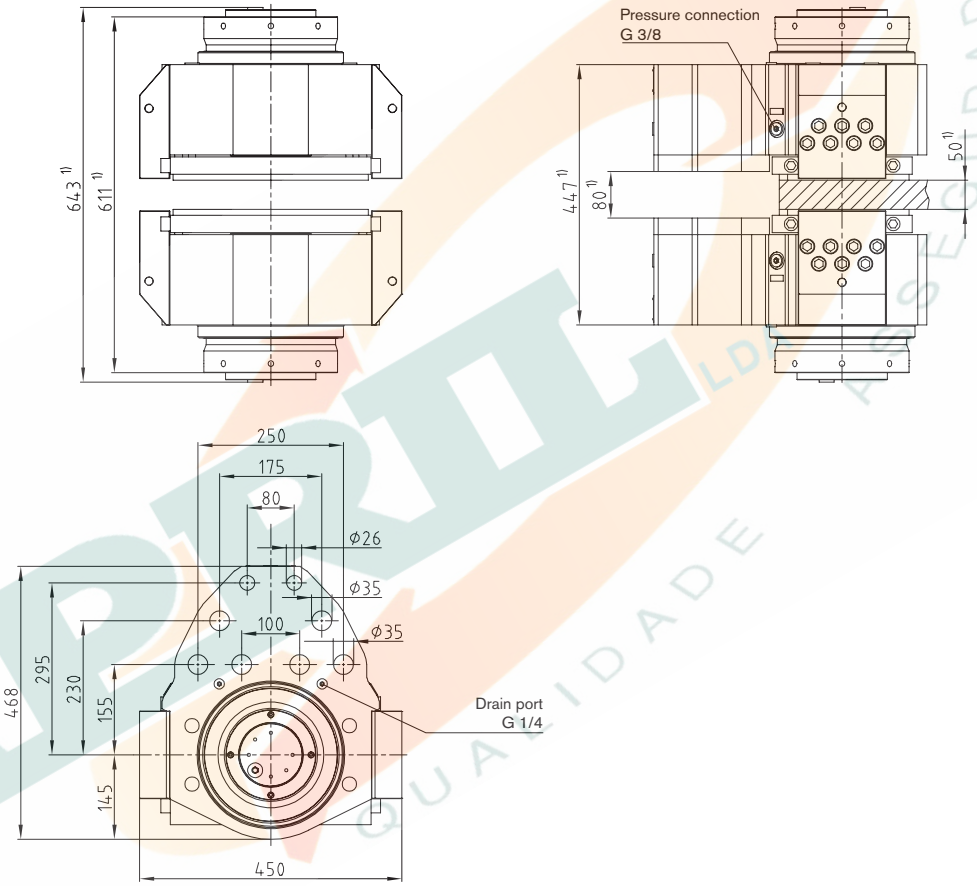
Optional

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

KTR-STOP® L-xxx
Passive fixed caliper brakes

Hydraulic brake system





KTR-STOP® L-xxx			
Total weight	Approx. 455 kg	Max. operating pressure	200 bars
Width of brake pad	240 mm	Min. thickness of brake disk	30 mm
Surface of each brake pad (organic)	73,100 mm²	Pressure connection	G 3/8
Max. wear of each brake pad	6 mm	Drain port	G 1/4
Rated coefficient of friction 2)	μ = 0.4	Min. diameter of brake disk $ØD_A$	1000 mm
Total brake piston surface - complete brake	452 cm²	Operating temperature	-20 °C to +50 °C
Volume with 1 mm stroke - complete brake	45.2 cm³		

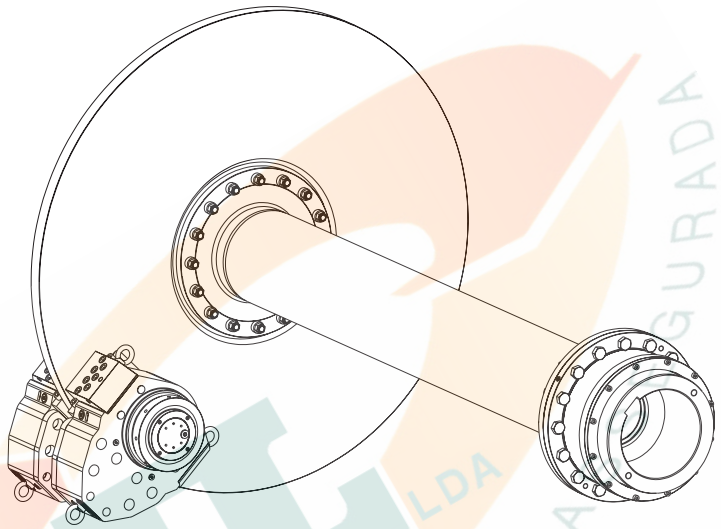
1) Dimensions depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.

Ordering example:

KTR-STOP®	L	-	200	A	-	50	-	80
KTR brake	Size of brake		Clamping force	Variant		Thickness of brake disk		Thickness of stand

Brake types						
Brake type	Clamping force F_C [kN]	Loss of power [3] [%]	Opening pressure [bar]	Braking torque [Nm] with brake disk Ø [mm]		
				1000	2000	3000
KTR-STOP® L 200	200	4.5	120	61000	141000	221000
KTR-STOP® L 250	250	7.5	160	77000	177000	277000
KTR-STOP® L 300	300	6.0	180	92000	212000	332000

[3] With a stroke of 1 mm (1 mm wear of brake pad)

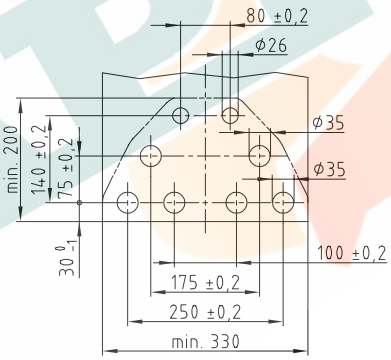


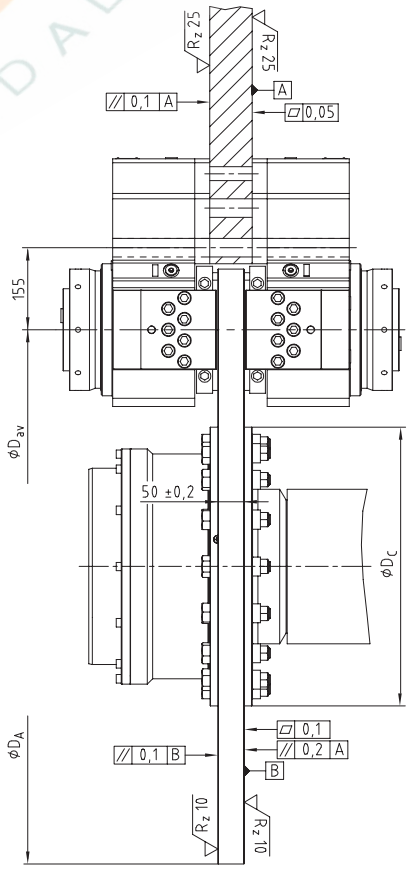
Calculation of brake disk

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

$D_{av} = D_A - 230$

Connection dimensions of brake





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

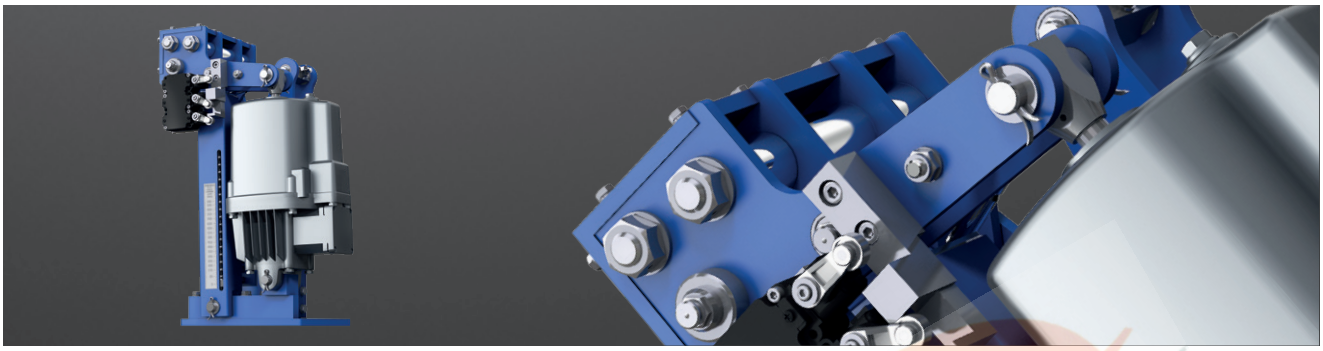
$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$

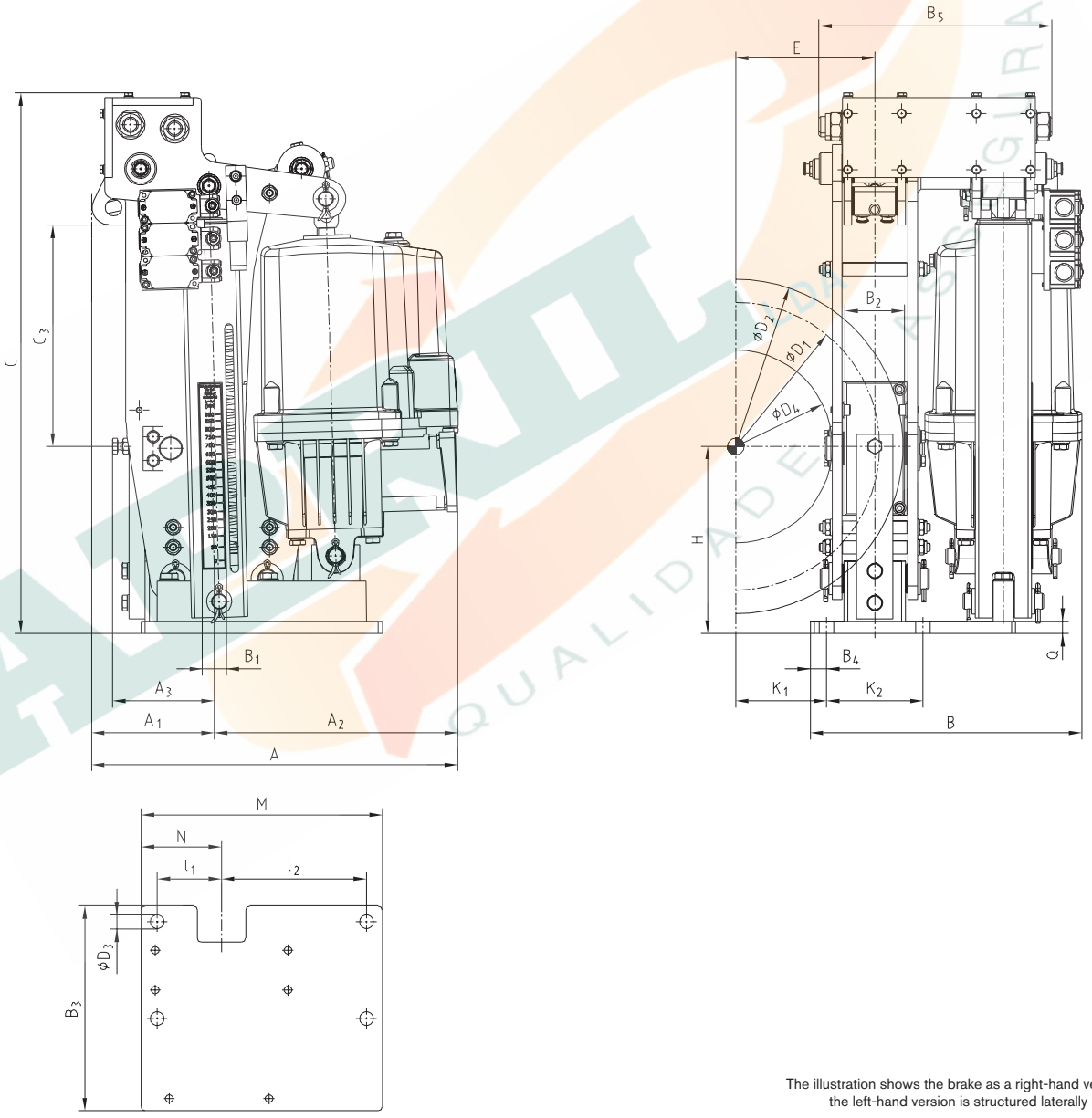
F_b = Braking force [kN]
F_c = Clamping force [kN]
M_b = Braking torque [kNm]
z = Number of brakes
D_{av} = Effective diameter of brake [m]

Optional

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

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

Optional

- Automatic wear adjustment
- Manual thruster
- Limit switch brake condition and wear of pad
- Decelerated damping
- Alternative pad materials
- Relubricated bearing points
- Special painting
- Other options available: please consult with KTR.

Applications

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

Size S1

Thruster	Dimensions [mm]																	
	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		325					255								
Ed 300/50	470	195	275	140	325	255	20	330	690	255	18	230	80	180	120	300	100	15
Ed 500/60	500		305		345					260								
Ed 800/60	500		305		345					260								

Brake disk							Brake pad	Weight	Max. braking torque in Nm, μ = 0.4 [1]			
Size	Dimensions [mm]							AB [cm²]	[kg] [2]	Ed 230/50	Ed 300/50	Ed 500/60	Ed 800/60
	D2	B1	D1	$D4_{max}$	E	K1	B2						
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	Dimensions [mm]																	
	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																		
Ed 800/60	615	255	360	175	385	300	20	390	890	340	22	280	130	130	140	300	150	18
Ed 1250/60																		
Ed 2000/60																		

Brake disk							Brake pad	Weight	Max. braking torque in Nm, μ = 0.4 [1]			
Size	Dimensions [mm]							AB [cm²]	[kg] [2]	Ed 500/60	Ed 800/60	Ed 1250/60	Ed 2000/60
	D_2	B_1	D_1	$D4_{max}$	E	K_1	B_2						
S2	450	30	359	196	173	105	100	193	130	1200	1985	3005	4465
S2	500	30	409	246	198	130	100	193	130	1370	2260	3425	5090
S2	560	30	469	306	228	160	100	193	130	1570	2595	3925	5835
S2	630	30	539	376	263	195	100	193	130	1805	2980	4510	6705
S2	710	30	619	456	303	235	100	193	130	2075	3425	5180	7700
S2	800	30	709	546	348	280	100	193	130	2375	3925	5935	8820

Size S3

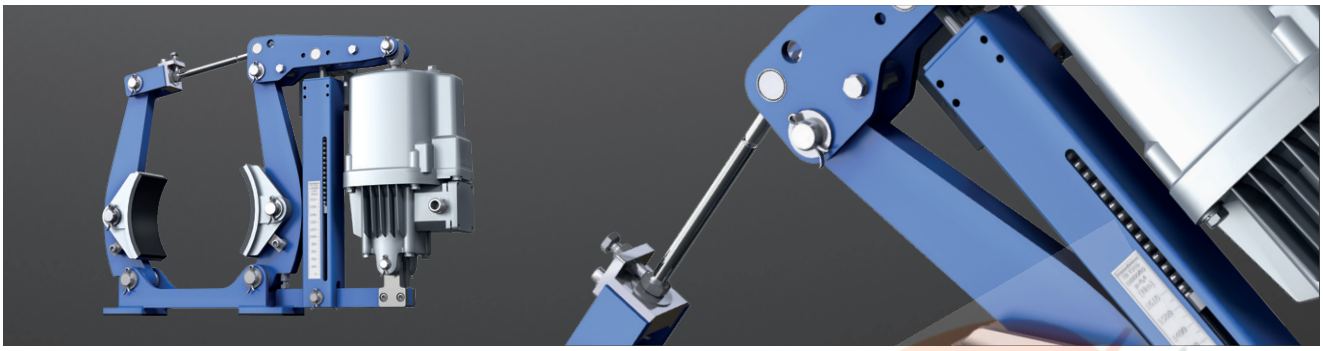
Thruster	Dimensions [mm]																	
	A_{max}	$A1_{max}$	$A2_{max}$	A_3	B_{max}	B_3	B_4	$B5_{max}$	C_{max}	C_3	D_3	H	I_1	I_2	K_2	M	N	Q
Ed 1250/60																		
Ed 2000/60	620	285	335	240	470	370	30	470	1110	495	27	370	180	180	160	450	225	22
Ed 3000/60																		
Ed 3000/120																		

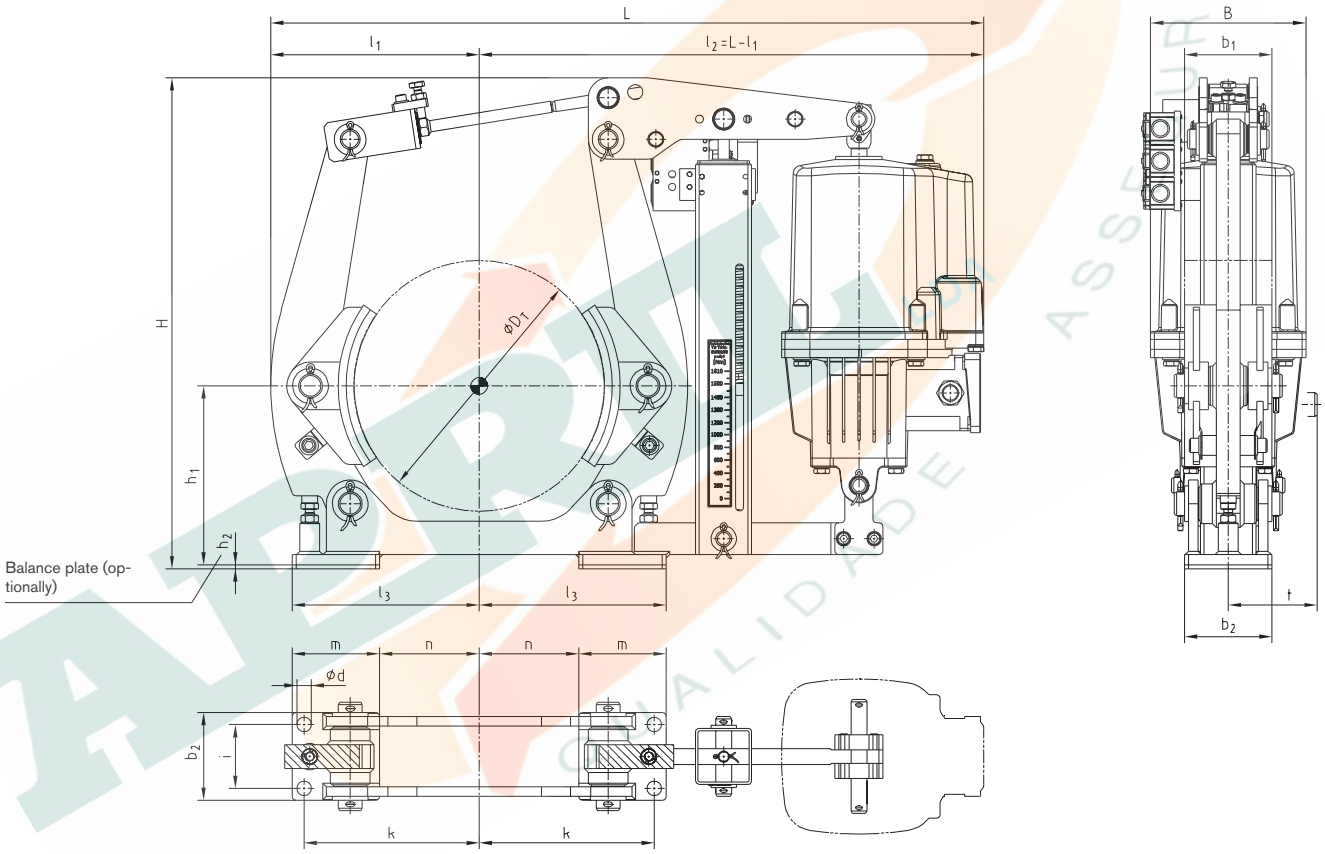
Brake disk							Brake pad	Weight	Max. braking torque in Nm, μ = 0.4 [1]			
Size	Dimensions [mm]							AB [cm²]	[kg] [2]	Ed 1250/60	Ed 2000/60	Ed 3000/60	Ed 3000/120
	D_2	B_1	D_1	$D4_{max}$	E	K_1	B_2						
S3	630	30	520	305	245	163	135	346	265	4125	6010	10230	11655
S3	710	30	600	385	285	203	135	346	265	4755	6935	11805	13450
S3	800	30	690	475	330	248	135	346	265	5470	7975	13575	15465
S3	900	30	790	575	380	298	135	346	265	6265	9130	15545	17710
S3	1000	30	890	675	441	355	125	309	265	7055	10290	17515	19950
S3	1250	30	1140	925	566	480	125	309	265	9040	13180	22435	25555

[1] Air gap per side approx. 1.25 mm for size S1 and approx. 1.5 mm for size S2 and S3.
The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
[2] Without thruster

For technical data of KTR-STOP® TB thruster see page 48/49.

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

Optional

- Automatic wear adjustment
- Manual thruster
- Limit switch brake condition and wear of pad
- Decelerated damping
- Alternative pad materials
- Relubricated bearing points
- 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]	Dimensions [mm]															m [2]
[mm]		Nm for μ = 0.4	B	b1	b2	d	H	h1	h2	L	l_1	l_3	i	k	m	n	t	[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																
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																
	Ed 500/60	80 - 800	195							770								
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																
	Ed 500/60	120 - 940	195							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																
	Ed 500/60	200 - 940	195							1005								70
	Ed 800/60	200 - 1610																
	Ed 1250/60	200 - 2580	240				780			1090	345							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															
	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 resp. material of the brake pad; please consult with KTR.
[2] Without thruster

For technical data of KTR-STOP® TB thruster see page 48/49.

KTR-STOP® TB THRUSTER
according to DIN 15430

Electrohydraulic thrusters

Description of product:

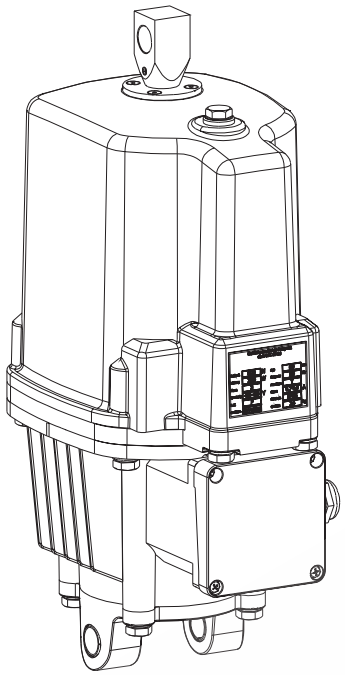
Electrohydraulic thrusters are compact systems closed on the outside that mainly consist of an electric motor and a hydraulic unit. When switched on the electric motor in the lower section of the housing is driving the pump wheel of the hydraulic pump on top. The hydrodynamic pressure generated takes effect on a piston extending the piston rod to the end-of-stroke position When switching off the current or in the event of power failure the pump stops pumping, the oil pressure drops quickly and the piston rod returns into its original position.

To make sure that the piston returns particularly fast, it is possible to either install a return spring (similar to a brake spring) in the housing of the thruster or load the piston rod with an external force or install a quick lowering switch.

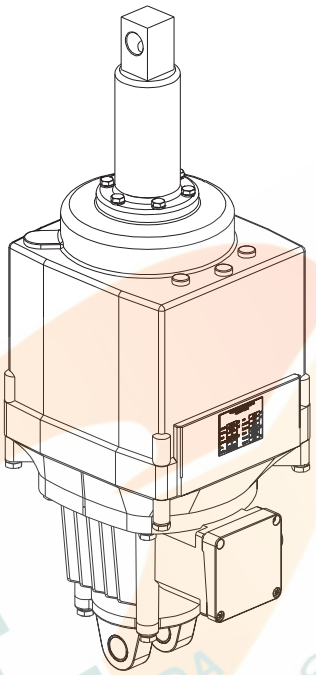
The hydraulic section with the tank is located in a closed housing. The oil level can be inspected and filled up externally through the oil filler hole. Electrohydraulic thrusters are supplied ready for assembly and painted and are provided with oil filling. They have to be fastened via pins in the bores of the base fork and in the piston rod head.

The piston stroke is either defined by a limitation in the device's housing or by an external attachment on the assembly.

KTR-STOP® TB thruster
Ed 800/60



KTR-STOP® TB thruster
Ed 3000/120



Features of thrusters

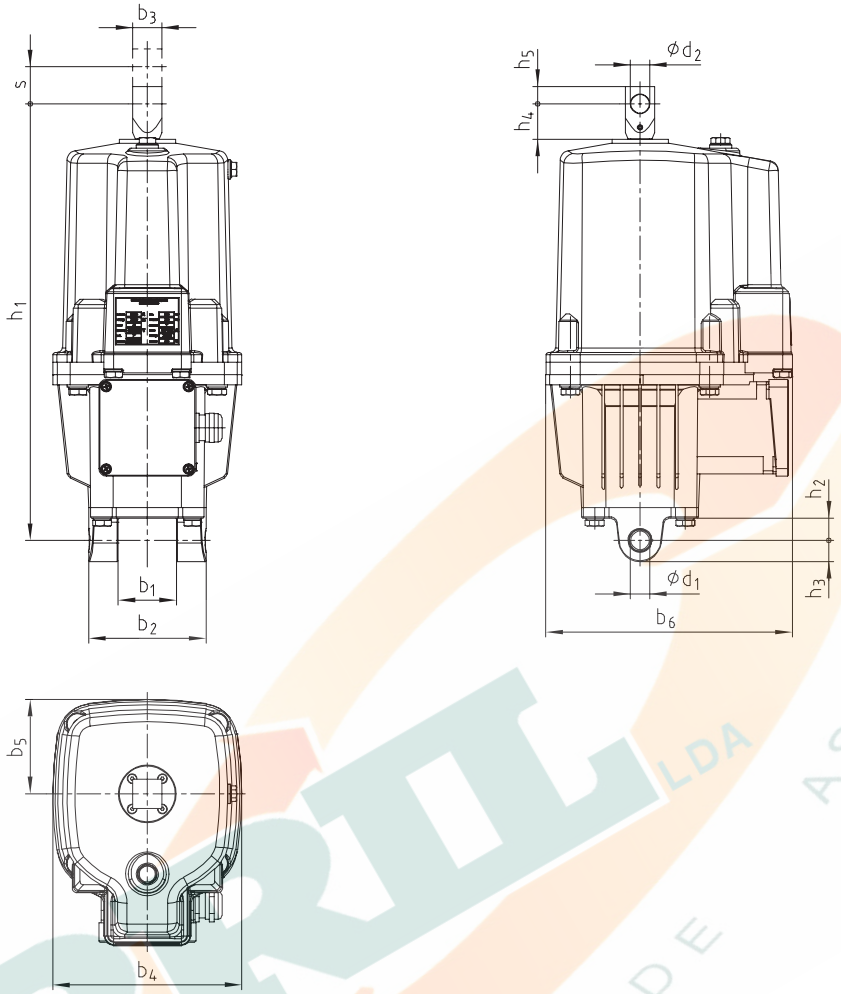
- Thrusters depending on size from 230 N to 4500 N
- Piston strokes from 50 mm to 120 mm with serial devices, longer strokes up to 155 mm in a special version
- Solid design, therefore specifically suitable for highly stressed and harsh operating conditions
- Any motor rotation direction, since the vane type pump pumps in any rotating direction
- Normally all thrusters can be loaded up to 2000 switches per hour
- For continuous switching 100 % ED (mode of operation S1 - VDE 0530)
- Resistant to voltage fluctuations
- All devices are provided with a bipolar rotary current cage motor, protection class IP66 and insulation class F according to VDE 0530, limit temperature of motor 150 °C
- Piston stroke and lowering time adjustable by installation of a globe respectively lowering valve
- Standard design for rotary current 400V, 50 Hz- resp. for 500V, 50 Hz. All other rotary current voltages and frequencies are available. Motor terminal boxes are equipped with waterproof cable gland M25x1.5
- Additional return springs respectively brake springs can be installed in all devices
- Suitable with standard oil filling for ambient temperatures from -25 °C to +50 °C; with special oils and heating for temperatures down to -40 °C
- Up to ambient temperatures of 50 °C all thrusters are approved for 100 % ED (mode of operation S1 - VDE 0530)
- All devices suitable for standard brake control (e. g. reducing the hoist motor speed to approx. 20 % of the rated speed). In this case additional damping springs are required
- Every device can be mounted vertically, diagonally or horizontally and is almost maintenance-free
- If requested, all thrusters can be supplied with limit switches mounted

Extra equipment:

- Limit switch (mechanical or inductive)
- Lowering and globe valve - for infinitely variable extension of lifting and lowering times
- Quick switch - in case if standard lowering time of the piston is too long
- Brake spring (spring type c) for generating the braking force
- Damping spring (spring type d) for damping the aperiodic stabilising of the brake (only effective in combination with a spring type c)
- Heating for use with temperatures mainly below -25 °C

KTR-STOP® TB THRUSTER
according to DIN 15430

Electrohydraulic thrusters



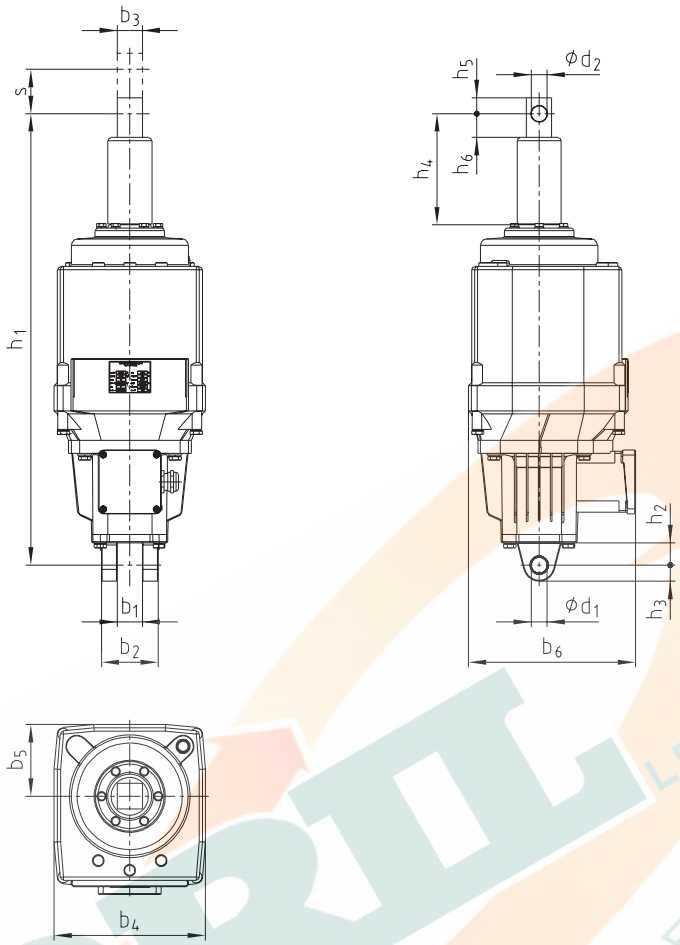
KTR-STOP® TB thruster														
Size	Dimensions [mm]													
	s	b1	b2	b3	b4	b5	b6	d_1 [2]	d_2 [1]	h1	h2	h3	h4	h5
Ed 230/50	50	40	80	20	160	80	200	16	16	286	20	16	26	12
Ed 300/50	50	40	80	25	160	80	197	16	16	370	18	16	34	15
Ed 500/60	60	60	120	30	195	97	254	20	20	435	23	22	36	18
Ed 800/60	60	60	120	30	195	97	254	20	20	450	23	22	36	18

[1] Tolerance: +0.1
[2] Tolerance: +0.15/+0.25

Technical data							
Size	Power [N]	Stroke [mm]	Rated frequency [Hz]	Rated voltage [V]	Rated current [A]	Rated power [W]	Weight [kg]
Ed 230/50	230	50	50	230/400	0.9/0.6	165	10
Ed 300/50	300	50	50	230/400	1.0/0.7	200	14
Ed 500/60	500	60	50	230/400	1.0/0.7	210	23
Ed 800/60	800	60	50	230/400	2.1/1.2	330	24

Ordering example:

KTR-STOP® TB	Ed 800/60
KTR thruster	Size



KTR-STOP® TB thruster															
Size	Dimensions [mm]														
	s	b1	b2	b3	b4	b5	b6	d_1 [2]	d_2 [1]	h1	h2	h3	h4	h5	h6
Ed 1250/60	60	40	90	40	240	112	260	25	25	645	35	25	117	25	38
Ed 1250/120	120	40	90	40	240	112	260	25	25	705	35	25	177	25	38
Ed 2000/60	60	40	90	40	240	112	260	25	25	645	35	25	117	25	38
Ed 2000/120	120	40	90	40	240	112	260	25	25	705	35	25	177	25	38
Ed 3000/60	60	40	90	40	240	112	260	25	25	645	35	25	117	25	38
Ed 3000/120	120	40	90	40	240	112	260	25	25	705	35	25	177	25	38
Ed 4000/60	60	40	90	40	240	112	260	25	25	645	35	25	117	25	38
Ed 4000/120	120	40	90	40	240	112	260	25	25	705	35	25	177	25	38
Ed 4500/60	60	40	90	40	240	112	260	25	25	645	35	25	117	25	38
Ed 4500/120	120	40	90	40	240	112	260	25	25	705	35	25	177	25	38

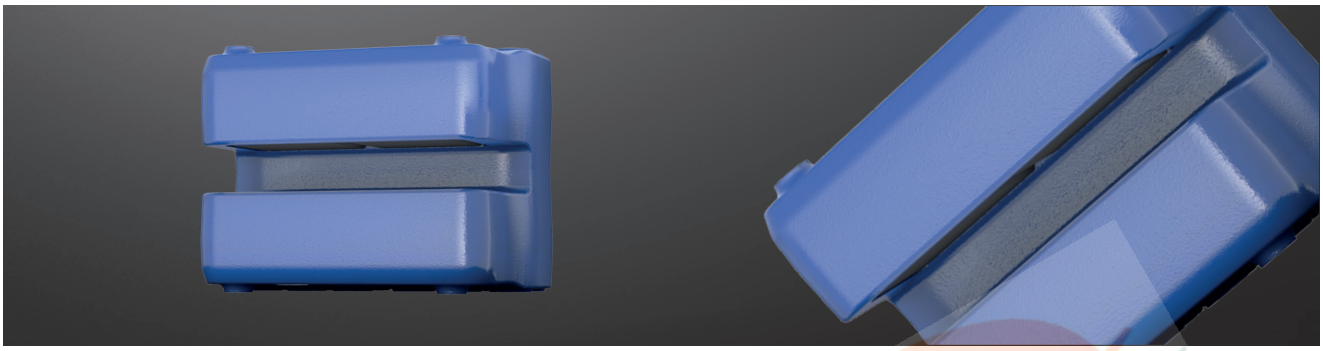
[1] Tolerance: +0.1
[2] Tolerance: +0.15/+0.25

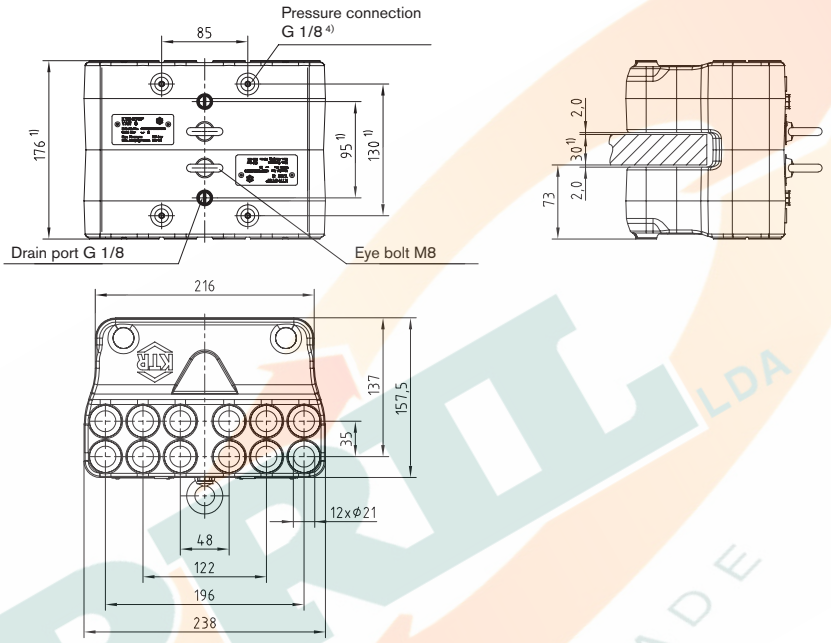
Technical data							
Size	Power [N]	Stroke [mm]	Rated frequency [Hz]	Rated voltage [V]	Rated current [A]	Rated power [W]	Weight [kg]
Ed 1250/60	1250	60	50	230/400	2.1/1.2	330	39
Ed 1250/120	1250	120	50	230/400	2.1/1.2	330	39
Ed 2000/60	2000	60	50	230/400	2.2/1.3	450	39
Ed 2000/120	2000	120	50	230/400	2.2/1.3	450	39
Ed 3000/60	3000	60	50	230/400	2.4/1.4	550	40
Ed 3000/120	3000	120	50	230/400	2.4/1.4	550	40
Ed 4000/60	4000	60	50	230/400	2.6/1.5	650	40
Ed 4000/120	4000	120	50	230/400	2.6/1.5	650	40
Ed 4500/60	4500	60	50	230/400	2.6/1.7	650	40
Ed 4500/120	4500	120	50	230/400	2.6/1.7	650	40

Ordering example:

KTR-STOP® TB	Ed 3000/120
KTR thruster	Size

Hydraulic brake system





KTR-STOP® YAW S			
Total weight	Approx. 29.5 kg 1)	Max. clamping force	106 kN
Width of brake pad	70 mm	Max. operating pressure (up to μ = 0.4)	160 bars
Surface of each brake pad	10,400 mm²	Thickness of brake disk 3)	20 mm
Max. wear of each brake pad	6 mm (material: organic)	External assembly of brake	400 mm
Rated 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 connection	G 1/8	Operating temperature	-20 °C to +50 °C
Drain port	G 1/8		

1) Dimensions and weight depending on thickness of brake disk.
2) The friction coefficient each depends on the application resp. material of the brake pad; please consult with KTR.
3) Other thickness of brake disk available on request.
4) Other positions of pressure connections available.

Calculation of braking force/braking torque

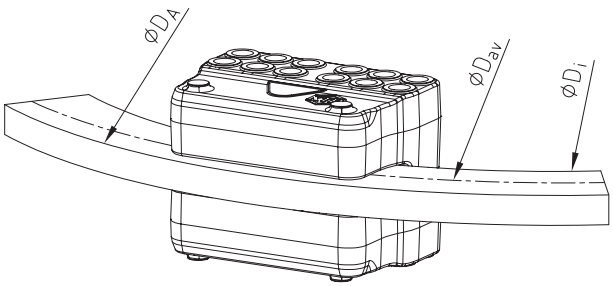
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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	B	-	20
	KTR brake	Size of brake	Variant		Thickness of brake disk

Internal assembly of brake



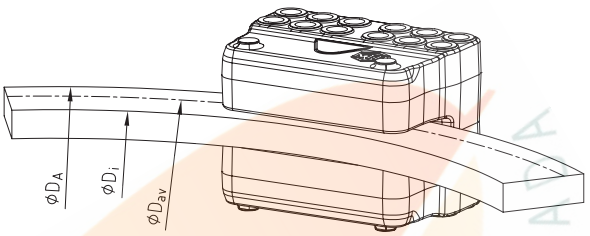
Calculation of brake disk

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

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

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

External assembly of brake

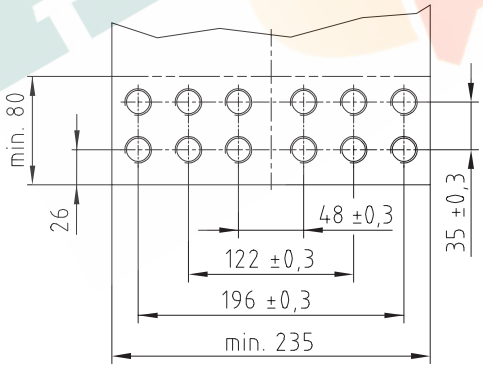


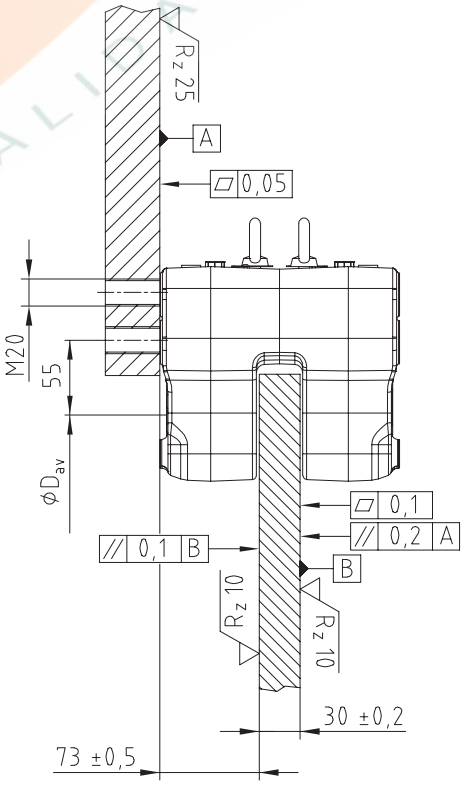
Calculation of brake disk

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

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

Connection dimensions of brake



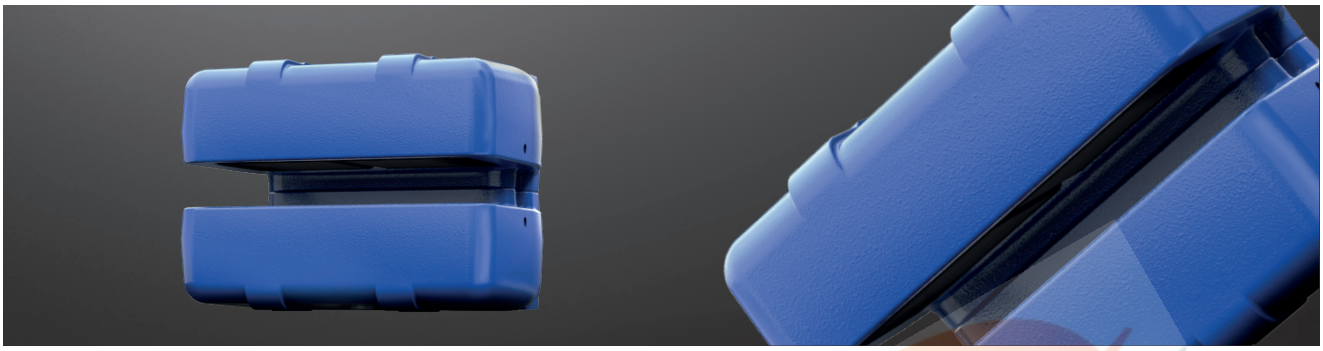


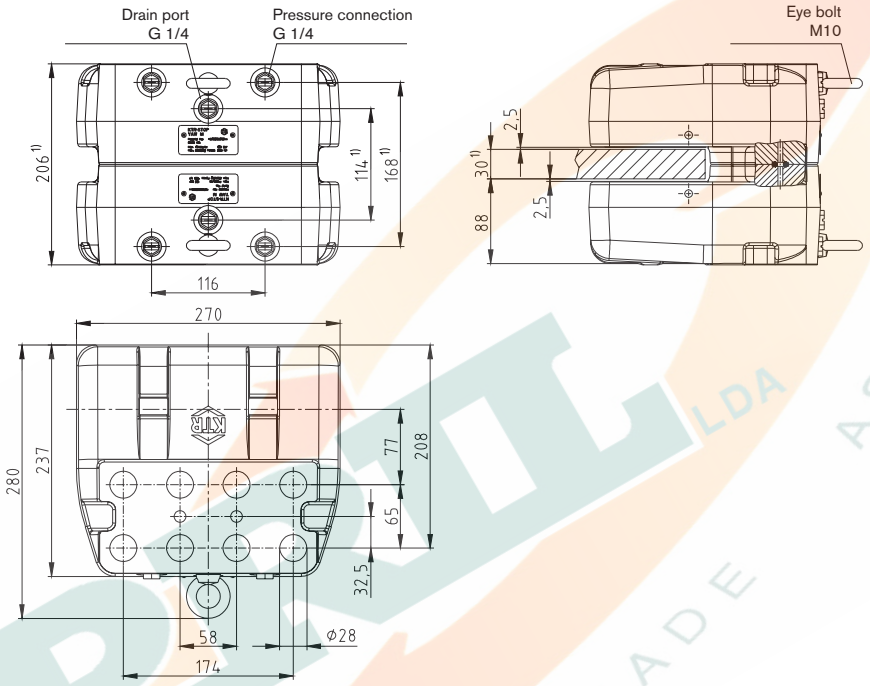
Optional

- 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 bars
Surface of each brake pad	20,300 mm²	Thickness of brake disk [3]	30 mm
Max. wear of each brake pad	7 mm (material: organic)	External assembly of brake	500 mm
Rated 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 connection	G 1/4	Operating temperature	-20 °C to +50 °C
Drain port	G 1/4		

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

Calculation of braking force/braking torque

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

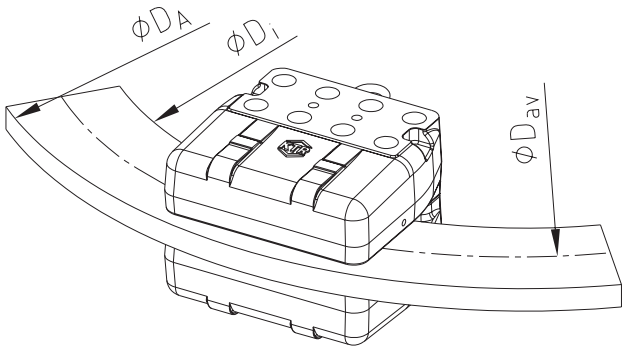
$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

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]

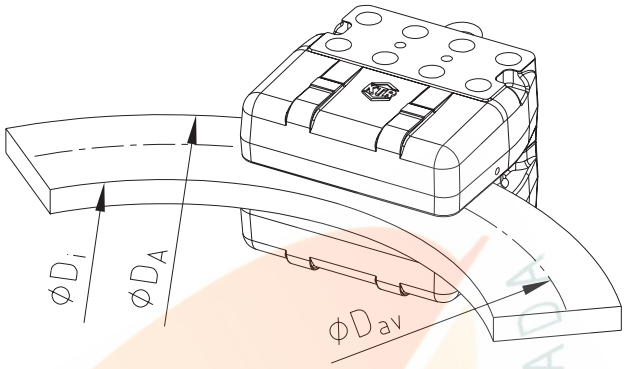
Ordering example:

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

Internal assembly of brake



External assembly of brake



Calculation of brake disk

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

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

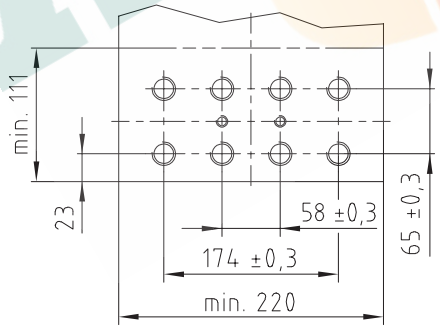
$$D_{A\ min.} = D_i + 250$$

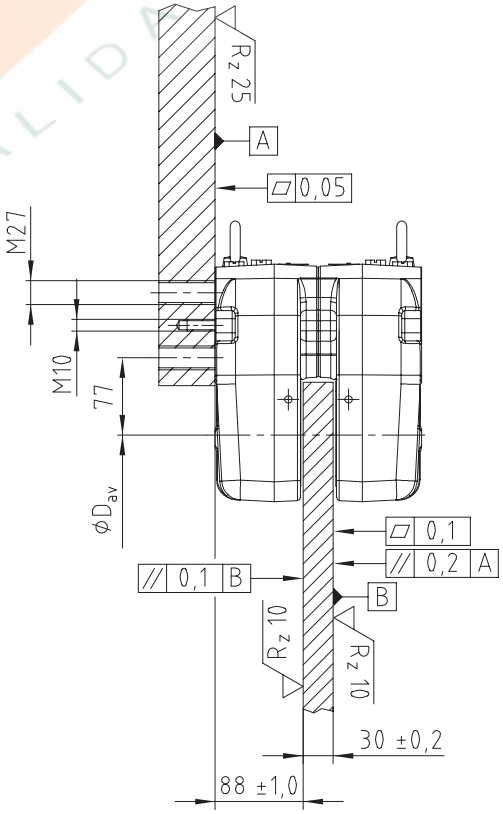
Calculation of brake disk

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

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

Connection dimensions of brake



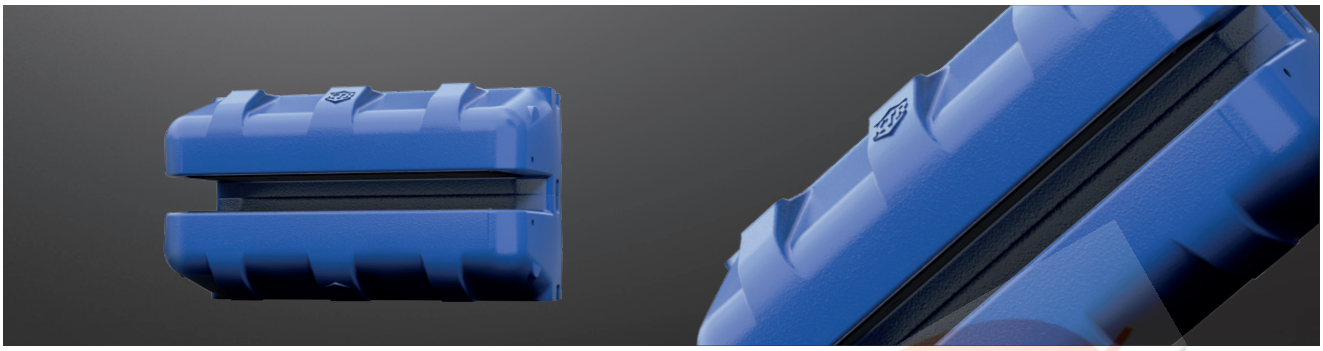


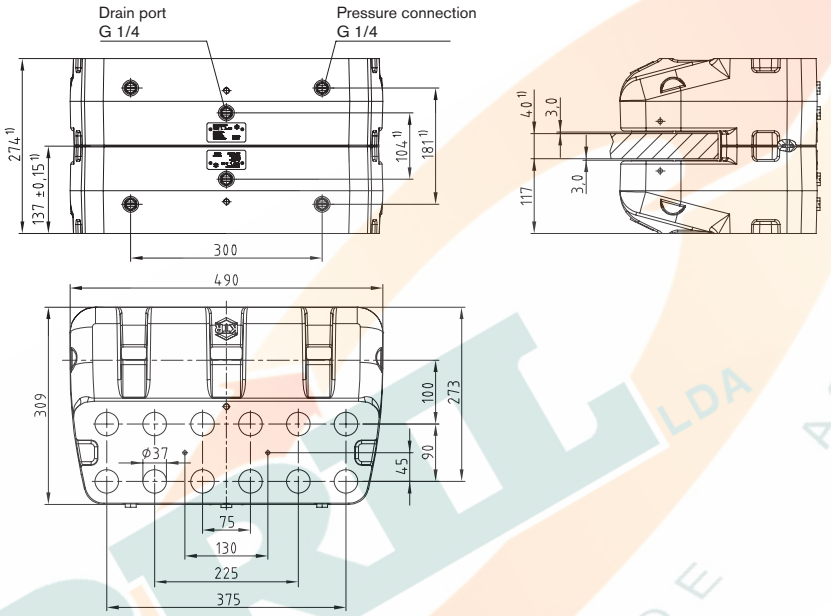
Optional

- 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 bars
Surface of each brake pad	58,000 mm²	Thickness of brake disk [3]	40 mm
Max. wear of each brake pad	7 mm (material: organic)	External assembly of brake	2000 mm
Rated 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 connection	G 1/4	Operating temperature	-20 °C to +50 °C
Drain port	G 1/4		

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

Calculation of braking force/braking torque

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

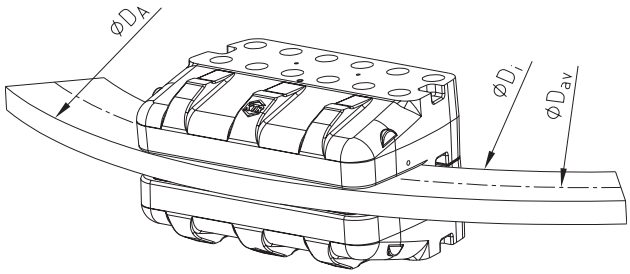
$$M_b = z \cdot F_b \cdot \frac{D_{av}}{2}$$

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]

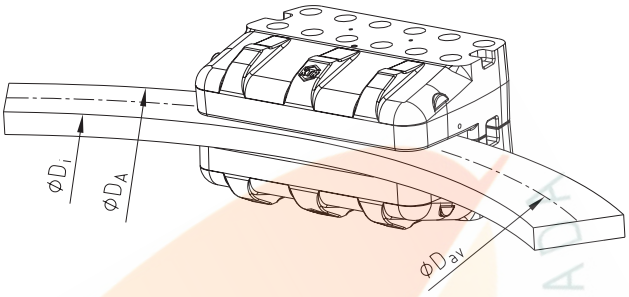
Ordering example:

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

Internal assembly of brake



External assembly of brake



Calculation of brake disk

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

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

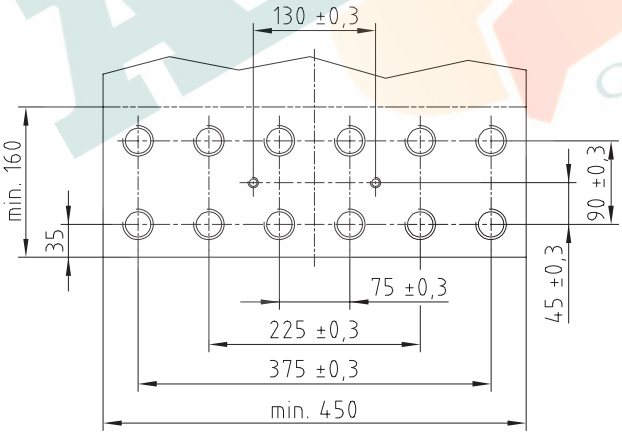
$$D_{A\ min.} = D_i + 320$$

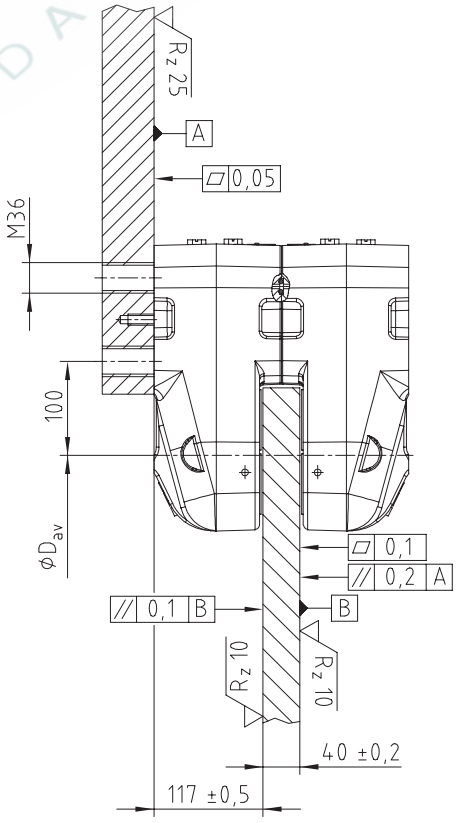
Calculation of brake disk

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

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

Connection dimensions of brake



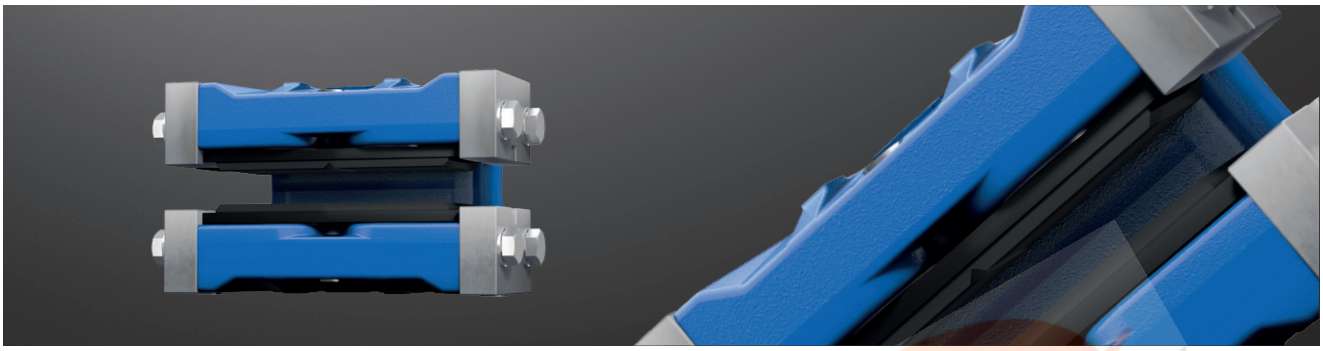


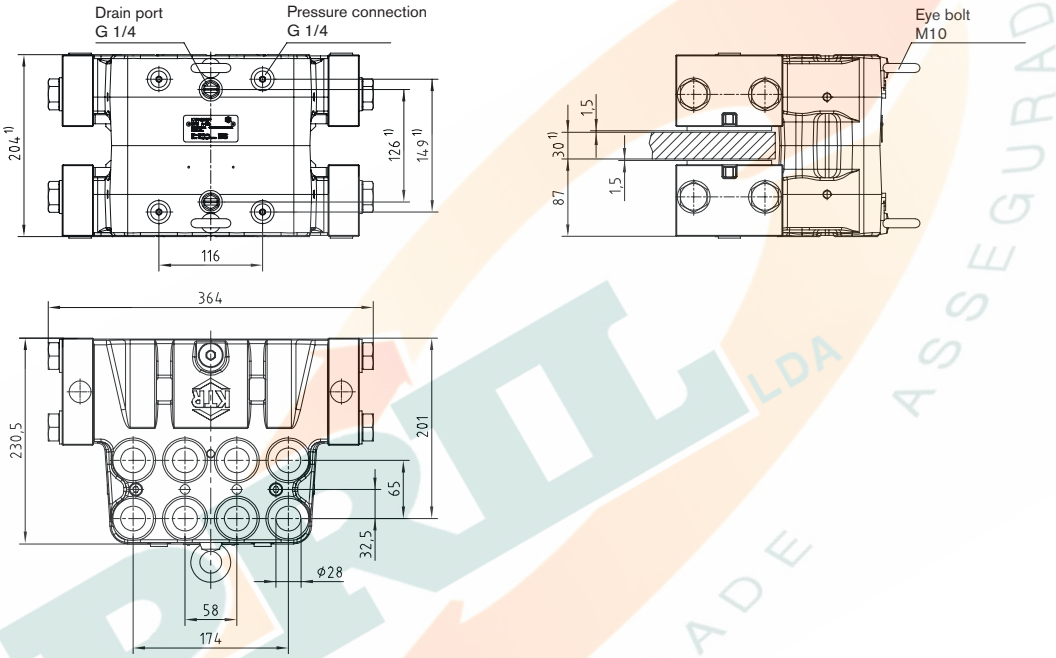
Optional

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

KTR-STOP® 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 bars
Surface of each brake pad organic	26,000 mm²	Thickness of brake disk [3]	30 mm, 40 mm
Max. wear of each brake pad	6 mm (material: organic)	Pressure connection	G 1/4
Rated coefficient of friction [2]	μ = 0.4	Drain port	G 1/4
Total brake piston surface - complete brake	254 cm²	Min. diameter of brake disk ØD$_A$	800 mm
Volume with 1 mm stroke - complete brake	25.4 cm³	Operating temperature	-20 °C to +50 °C

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

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

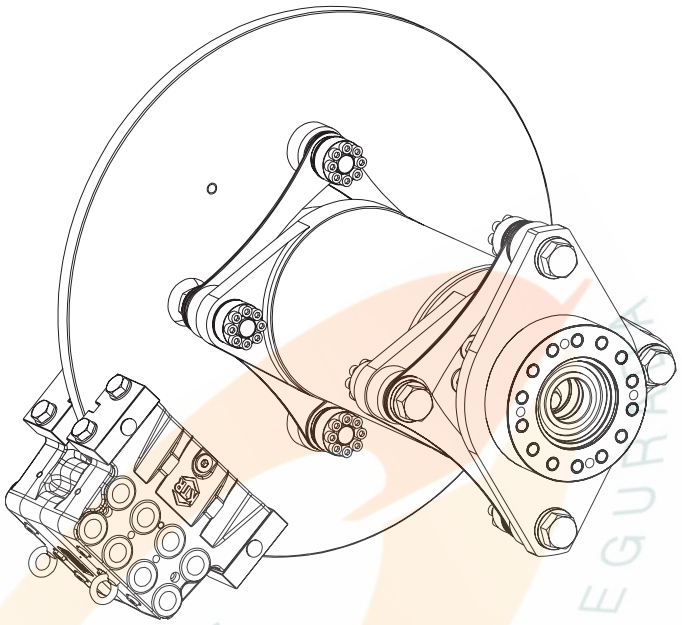
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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

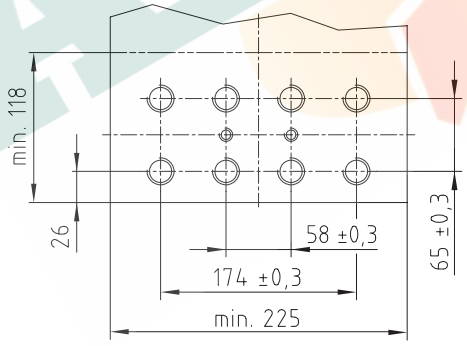


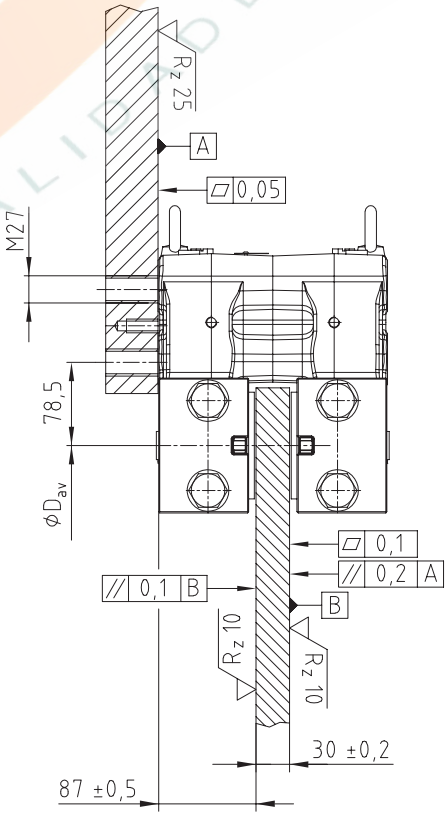
Calculation of brake disk

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

$D_{av} = D_A - 104$

Connection dimensions of brake



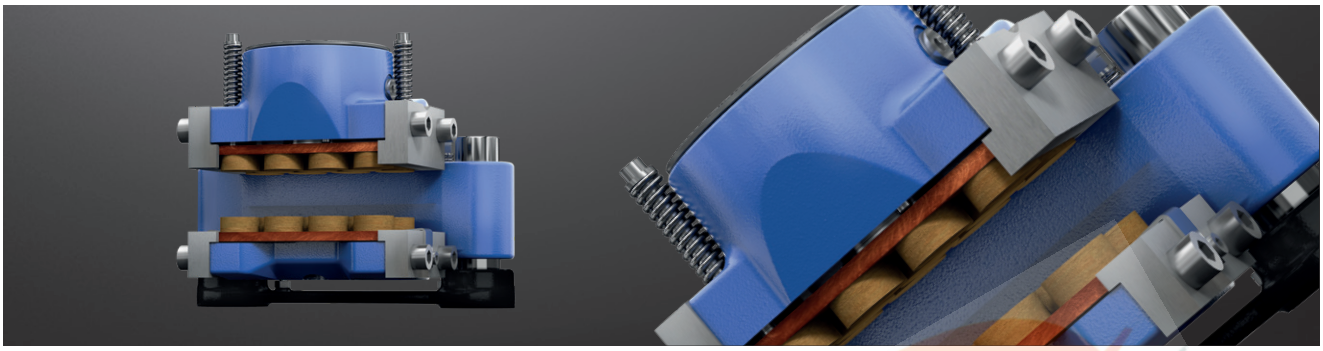


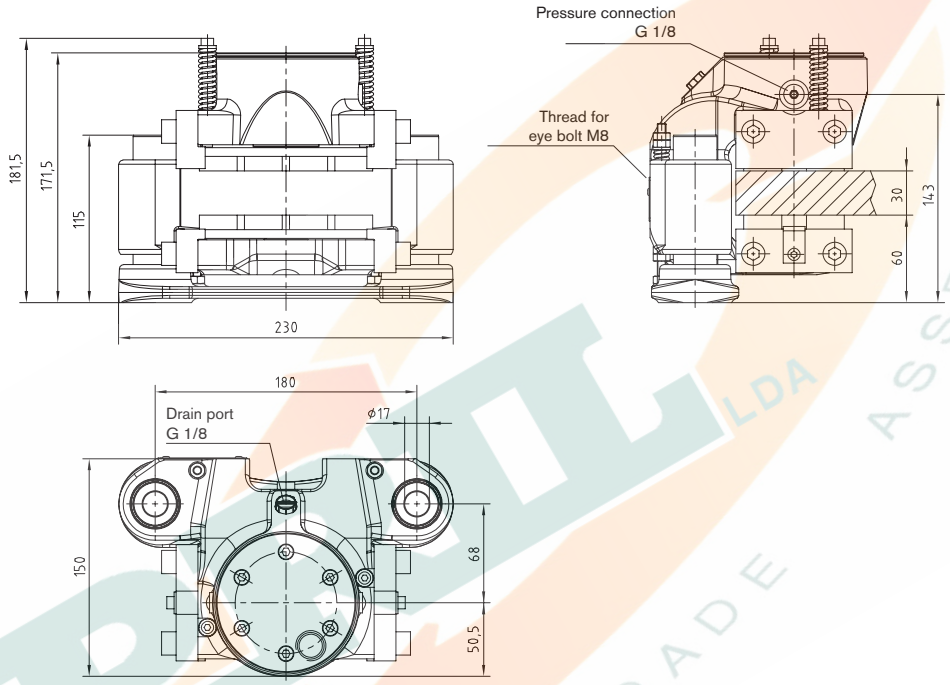
Optional

- 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. operating pressure	105 bars
Width of brake pad	70 mm	Thickness of brake disk [3]	20 mm, 30 mm
Surface of each brake pad organic	8,000 mm²	Pressure connection	G 1/8
sinter	5,800 mm²	Drain port	G 1/8
Max. wear of each brake pad	5 mm	Floating range on axes - towards mounting surface	5 mm
Rated coefficient of friction [2]	μ = 0.4	Floating range on axes - away from mounting surface	5 mm
Total brake piston surface - complete brake	15.9 cm²	Min. diameter of brake disk ØD$_A$	300 mm
Volume with 1 mm stroke - complete brake	1.59 cm³	Operating temperature	-20 °C to +50 °C
Max. clamping force	16.5 kN		

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

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

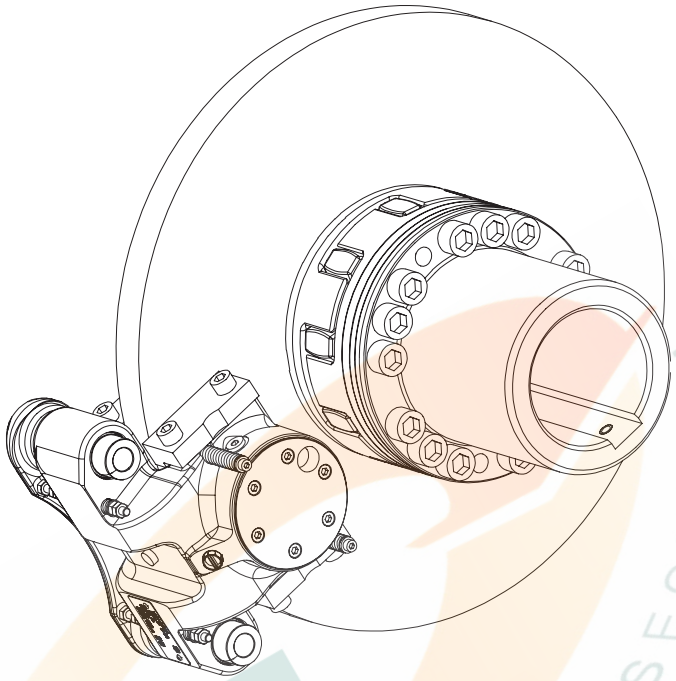
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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

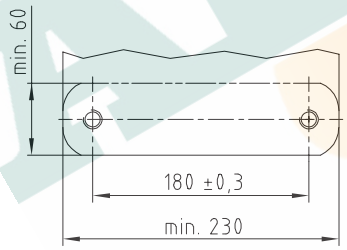


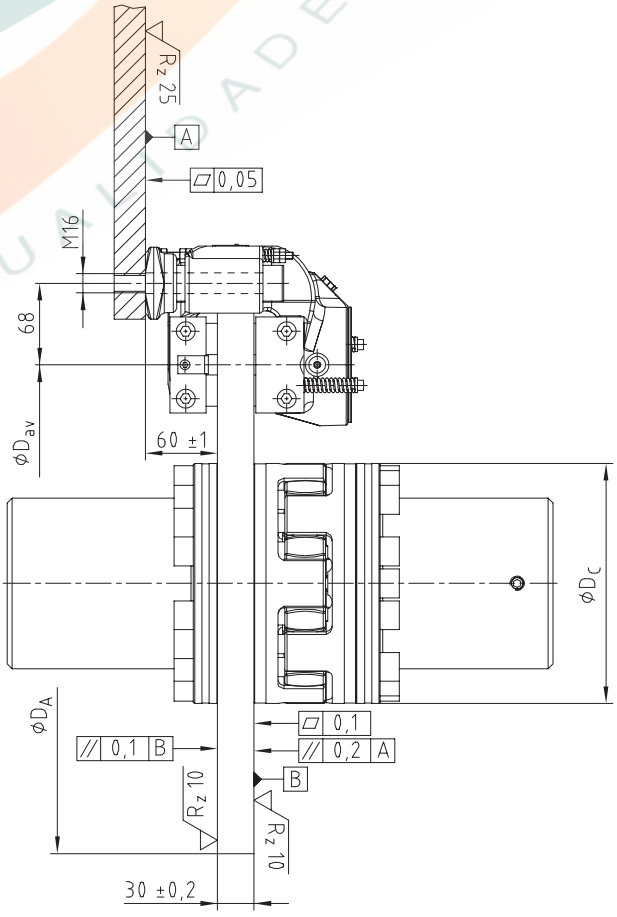
Calculation of brake disk

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

$D_{av} = D_A - 86$

Connection dimensions of brake



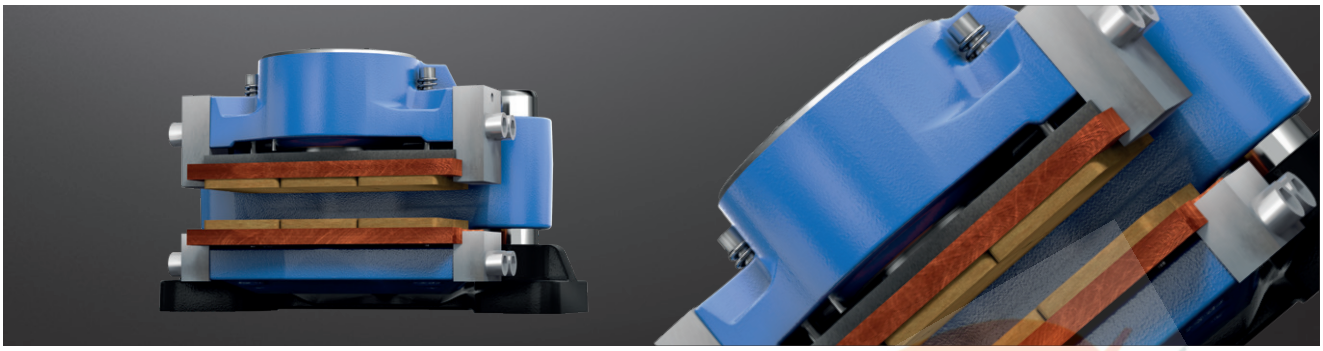


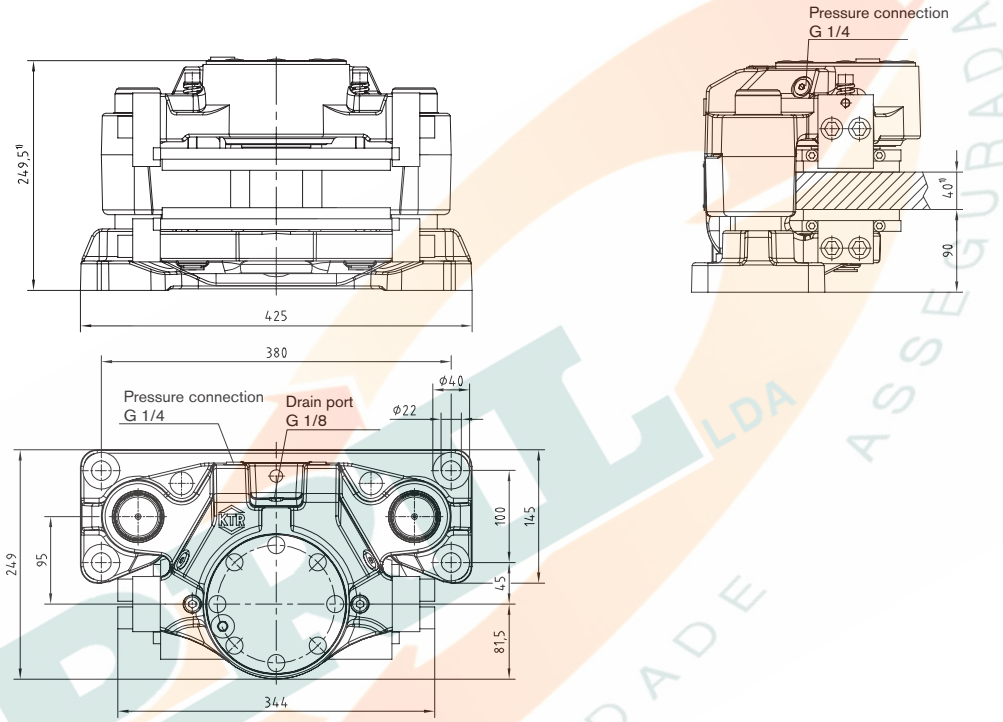
Optional

- 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. operating pressure	125 bars
Width of brake pad		125 mm	Thickness of brake disk [3]	20 mm, 30 mm, 40 mm
Surface of each brake pad	organic	28,700 mm²	Pressure connection	G 1/4
	sinter	26,800 mm²	Drain port	G 1/8
Max. wear of each brake pad		6 mm	Floating range on axes - towards mounting surface	5 mm
Rated coefficient of friction [2]		μ = 0.4	Floating range on axes - away from mounting surface	10 mm
Total brake piston surface - complete brake		44.2 cm²	Min. diameter of brake disk ØD$_A$	500 mm
Volume with 1 mm stroke - complete brake		4.42 cm³	Operating temperature	-20 °C to +50 °C
Max. clamping force		55 kN		

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

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

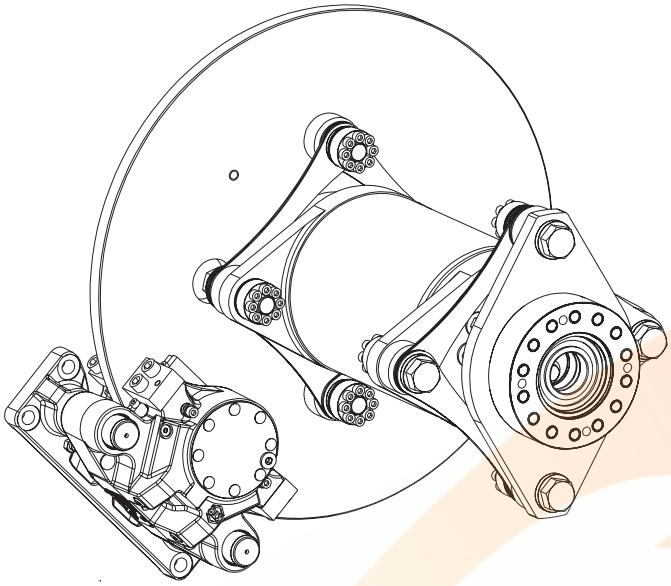
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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:

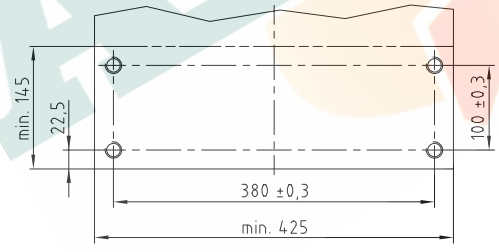
KTR-STOP®	S	-	A	-	F	B	-	30
KTR brake	Size of brake		Active		Floater	Variant		Thickness of brake disk

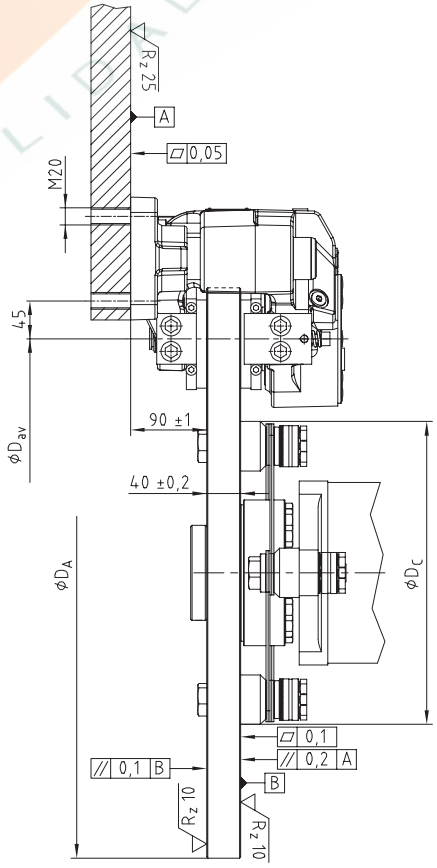


Calculation of brake disk

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



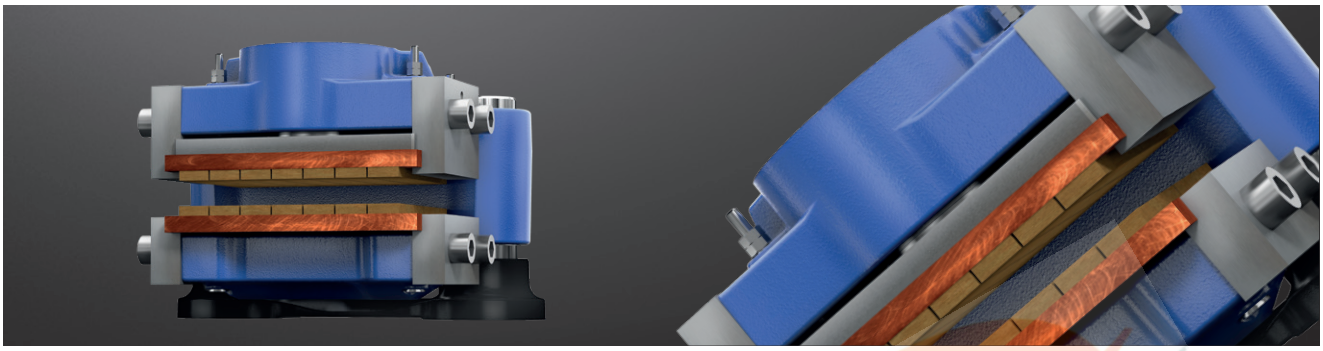


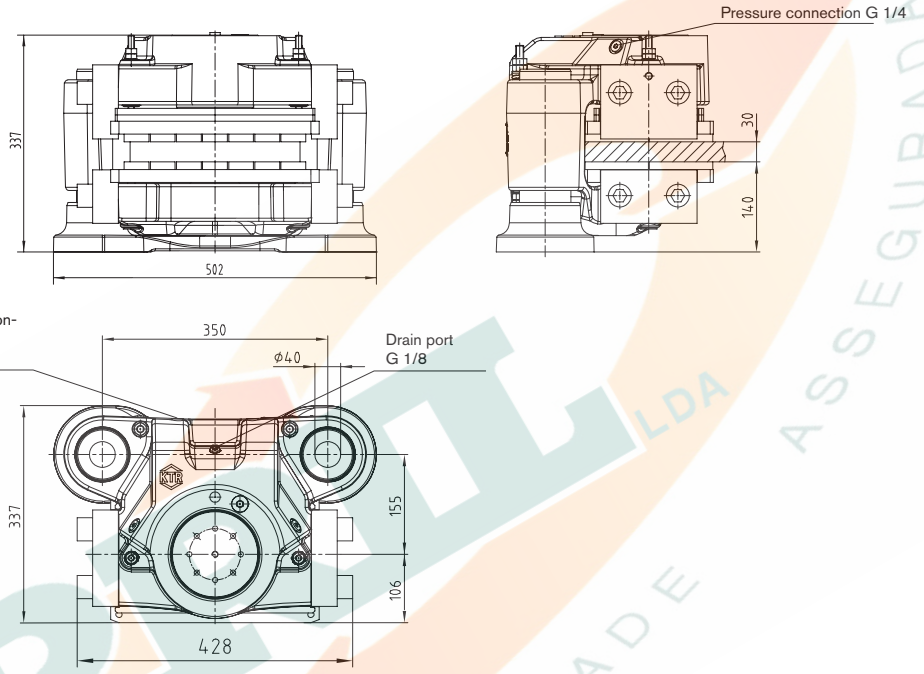
Optional

- 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. 235 kg [1]	Max. operating pressure	115 bars
Width of brake pad	200 mm	Thickness of brake disk [3]	30 mm, 40 mm, 50 mm
Surface of each brake pad organic	57,900 mm²	Pressure connection	G 1/4
sinter	53,500 mm²	Drain port	G 1/8
Max. wear of each brake pad	8 mm	Floating range on axes - towards mounting surface	5 mm
Rated coefficient of friction [2]	μ = 0.4	Floating range on axes - away from mounting surface	10 mm
Total brake piston surface - complete brake	113 cm²	Min. diameter of brake disk ØD$_A$	800 mm
Volume with 1 mm stroke - complete brake	11.3 cm³	Operating temperature	-20 °C to +50 °C
Max. clamping force	130 kN		

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

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

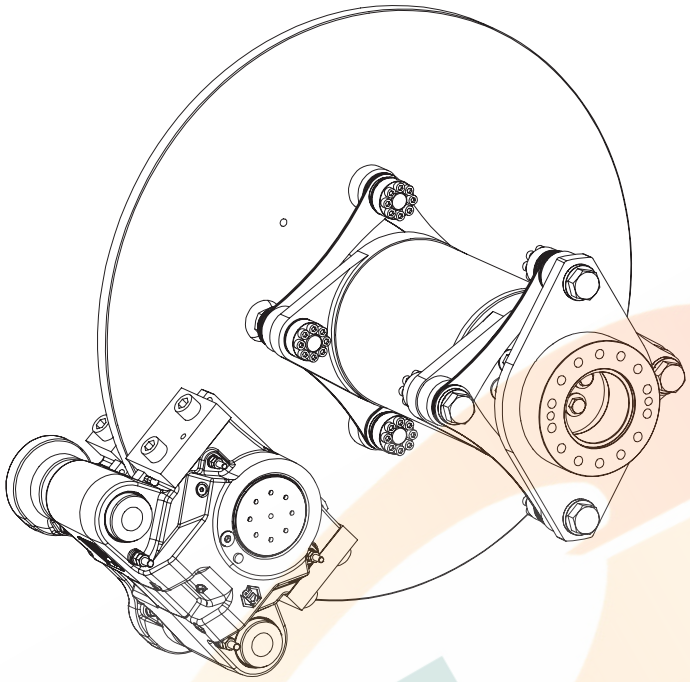
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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

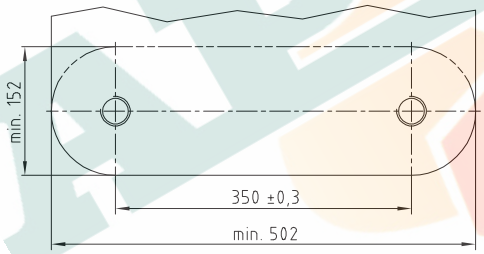


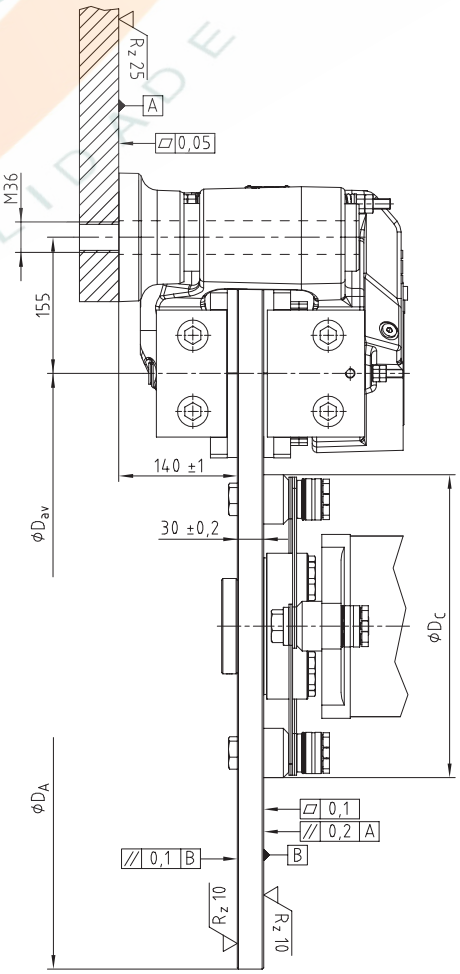
Calculation of brake disk

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

$D_{av} = D_A - 200$

Connection dimensions of brake



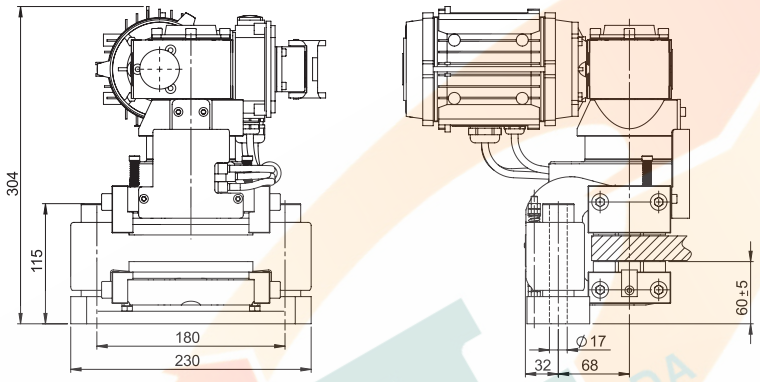


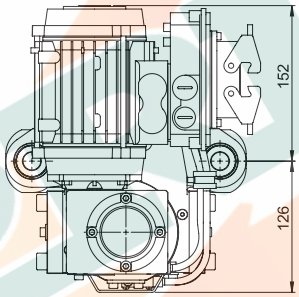
Optional

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

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

Electromechanical brake system





EMB-STOP XS-A-xx-F				
Total weight [1]		Approx. 30 kg	Floating range on axes - away from mounting surface	5 mm
Width of brake pad		70 mm	Min. diameter of brake disk ØDA	300 mm
Surface of each brake pad	organic	8,000 mm²	Operating temperature	-15 °C to +50 °C
	Sinter metal	5,800 mm²	Closing time	1.8 s
Max. wear of each brake pad		5mm	Release time	1.8 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		6 kN	Motor power	120 W
Max. clamping force		14 kN	Motor voltage	400 VAC, 50 Hz
Thickness of brake disk [3]		20 mm, 30 mm	Limit switch signals, standard	Released, braked, wear
Floating range on axes - towards mounting surface		5 mm		

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

Calculation of braking force/braking torque

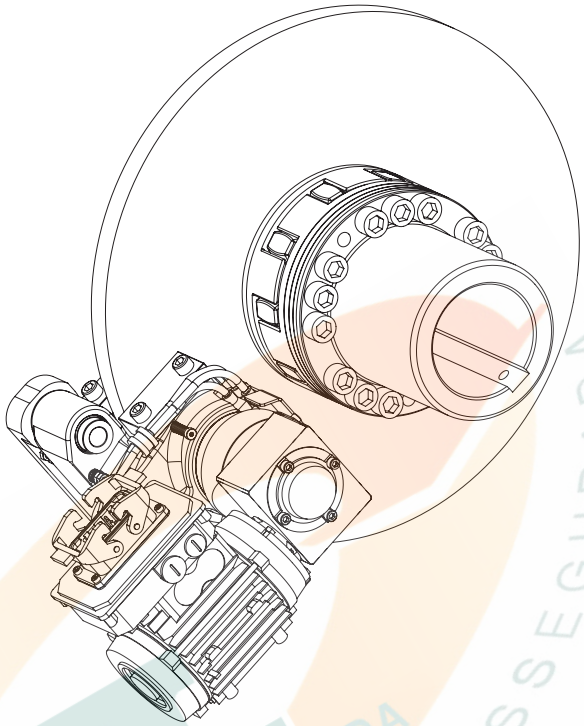
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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	XS	-	A	-	12	-	F	B	-	30
EMB brake	Size of brake		Active		Clamping force		Floater	Variant		Thickness of brake disk

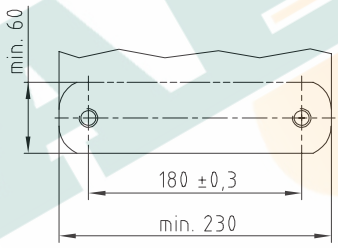


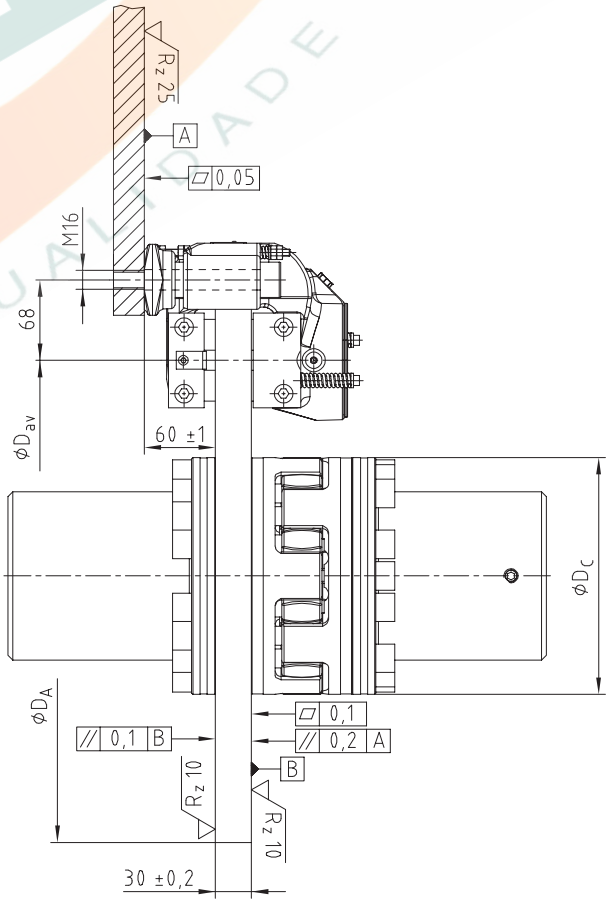
Calculation of brake disk

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

$D_{av} = D_A - 86$

Connection dimensions of brake



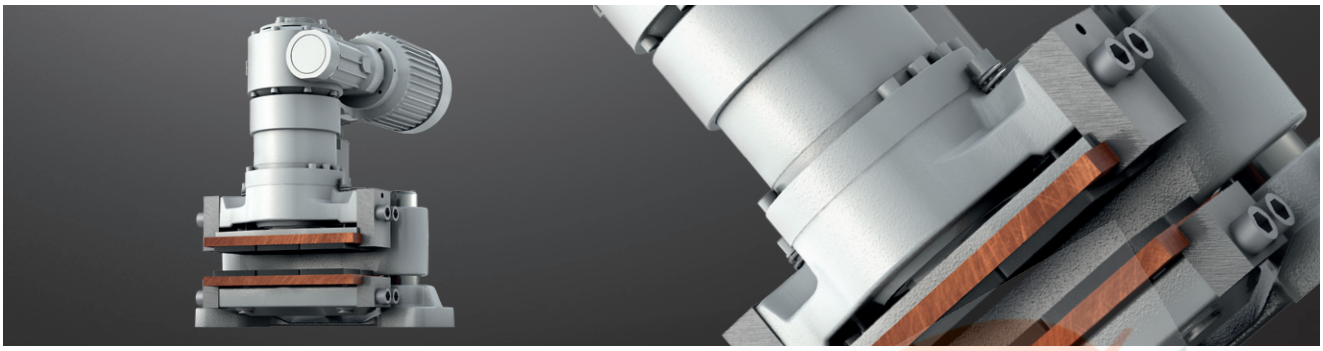


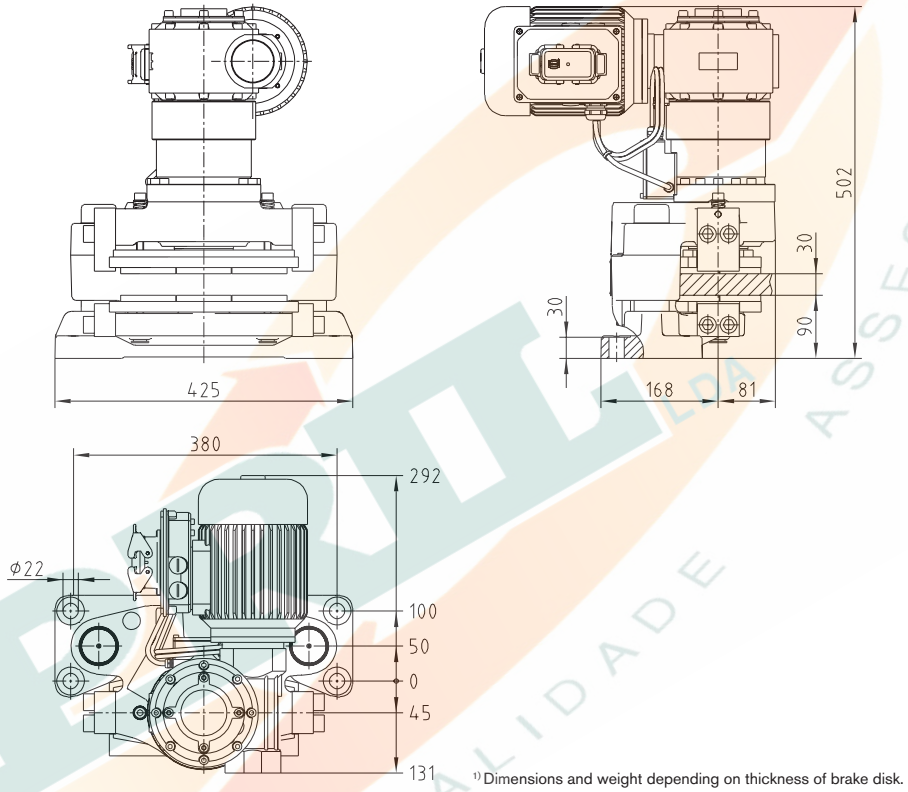
Optional

- 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 [1]		Approx. 112 kg	Floating range on axes - away from mounting surface	5 mm
Width of brake pad		120 mm	Min. diameter of brake disk ØDA	500 mm
Surface of each brake pad	organic	26,800 mm²	Operating temperature	-30 °C to +50 °C
	Sinter metal	26,800 mm²	Closing time	2.5 s
Max. wear of each brake pad		5mm	Release time	2.5 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		30 kN	Motor power	1.35 kW
Max. clamping force		65 kN	Motor voltage	400 VAC, 50 Hz
Thickness of brake disk [3]		30 mm, 40 mm	Limit switch signals, standard	Released, braked, wear
Floating range on axes - towards mounting surface		5 mm		

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

Calculation of braking force/braking torque

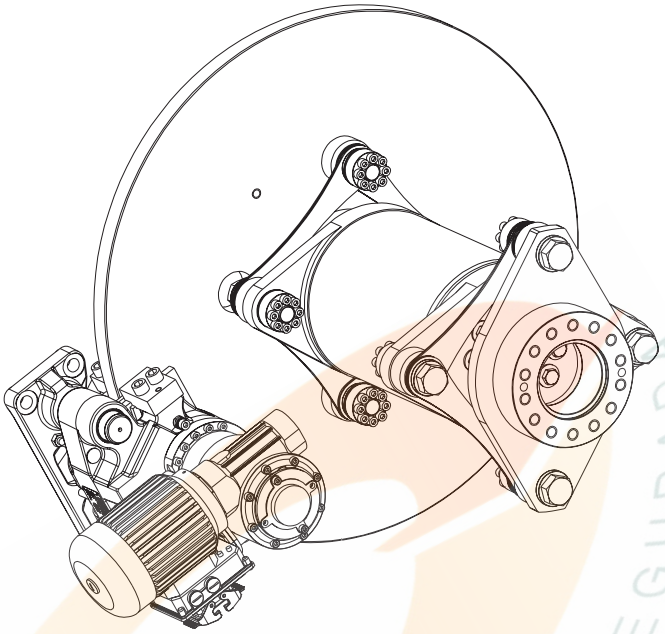
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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	S	-	P	-	50	-	F	B	-	30
EMB brake	Size of brake		Passive		Clamping force		Floater	Variant		Thickness of brake disk



Calculation of brake disk

$ØD_A$ = 500 ... 1000 mm

$D_{av} = D_A - 130$

$ØD_{C\ max.} = D_A - 300$

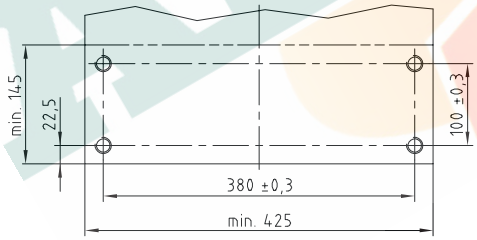
$ØD_A$ = 1000 ... 1800 mm

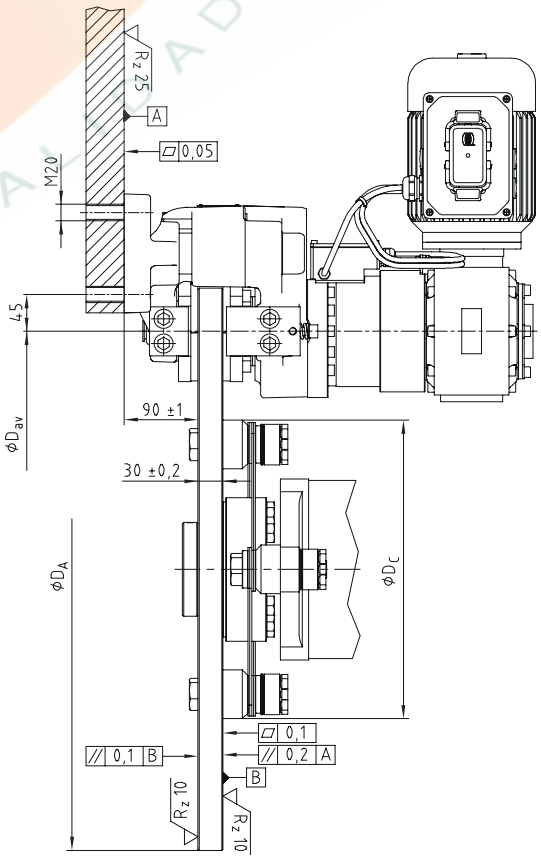
$D_{av} = D_A - 110$

$ØD_A$ = 1800 mm

$D_{av} = D_A - 105$

Connection dimensions of brake



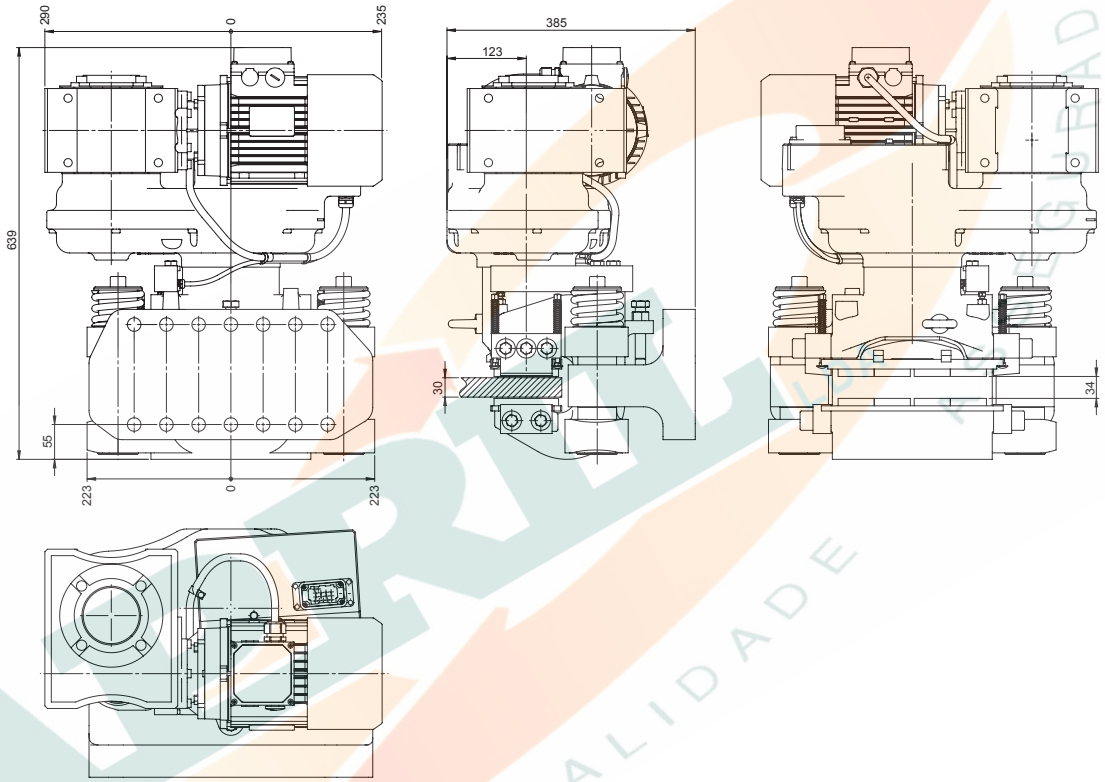


Optional

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

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

Electromechanical brake system



EMB-STOP L-A-xxx-F				
Total weight [1]		Approx. 235 kg	Floating range on axes - away from mounting surface	5 mm
Width of brake pad		100 mm	Min. diameter of brake disk ØDA	900 mm
Surface of each brake pad	organic	22,400 mm²	Operating temperature	-30 °C to +50 °C
	Sinter metal	22,400 mm²	Closing time	3 s
Max. wear of each brake pad		8mm	Release time	3 s
Coefficient of friction of pad, nominal value [2]		μ = 0.4	Size of industrial connector	Han 10B / Han 18EE (male)
Min. clamping force		125 kN	Motor power	1.5 kW
Max. clamping force		375 kN	Motor voltage	400 VAC, 50 Hz
Thickness of brake disk [3]		30 mm, 40 mm, 50 mm	Limit switch signals, standard	Released, braked, wear
Floating range on axes - towards mounting surface		5 mm		

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

Calculation of braking force/braking torque

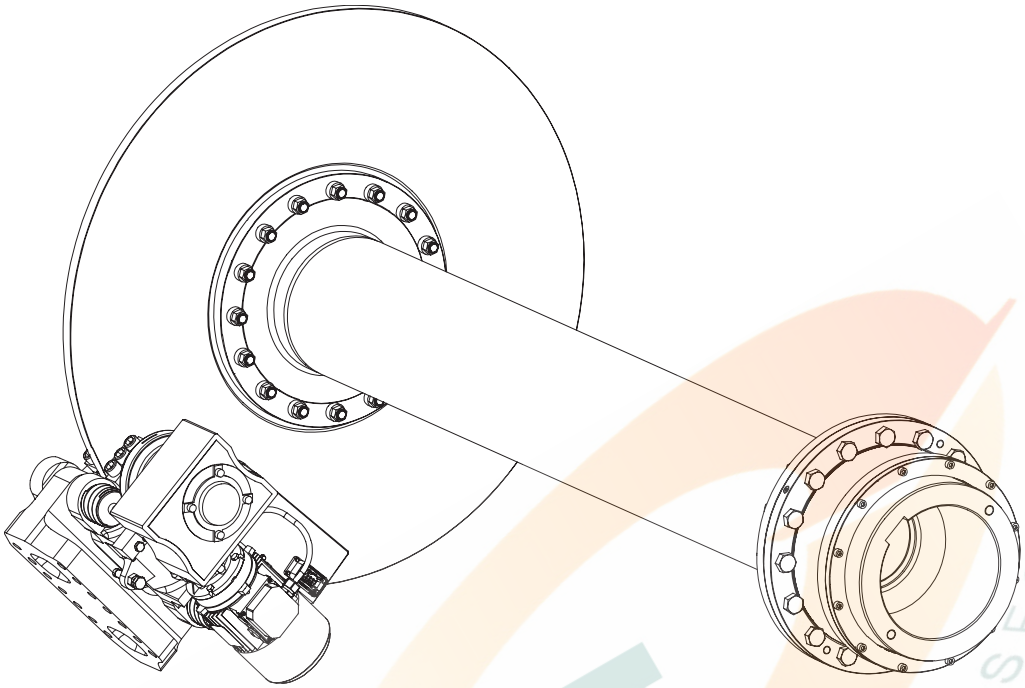
$$F_b = F_c \cdot 2 \cdot \mu$$

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

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	L	-	A	-	380	-	F	A	-	30
EMB brake	Size of brake		Active		Clamping force		Floater	Variant		Thickness of brake disk



Calculation of brake disk

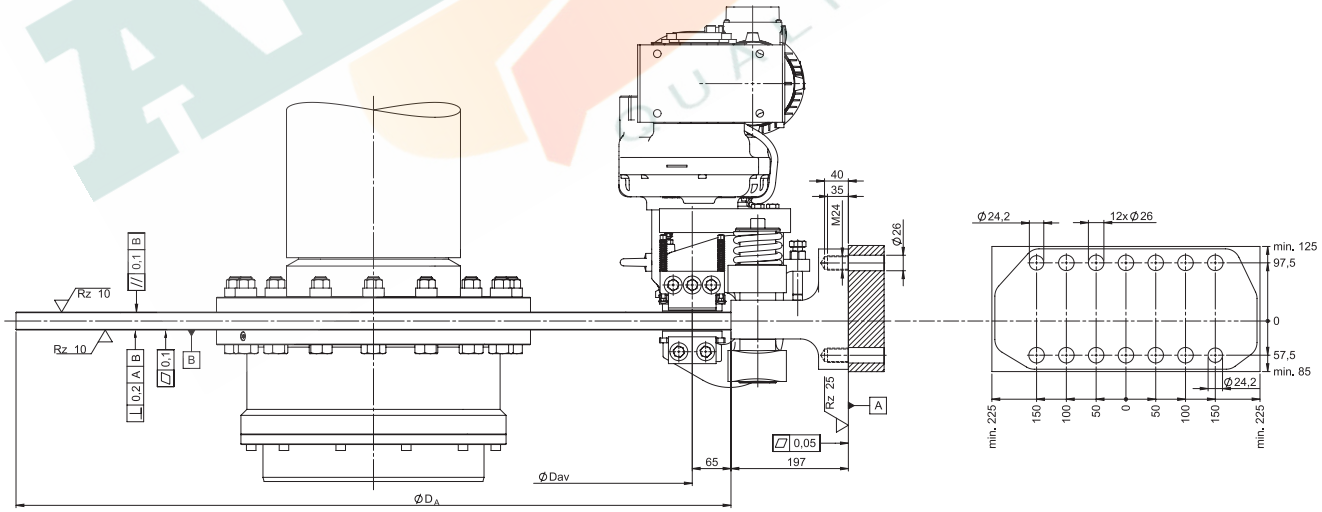
$ØD_A \leq 1800$ mm

$D_{av} = D_A - 130$

$ØD_A > 1800$ mm

$D_{av} = D_A - 120$

Connection dimensions of brake



Optional

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

IntelliRamp®
Electronic control system

Description of product

IntelliRamp® is an electronic control system allowing for accurate braking processes via program control. In conjunction with IntelliRamp® our brakes are therefore suitable for 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 functions 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 parameters like oil level, oil temperature and hydraulic pressure are recorded by the system. The overall system, among other things, 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

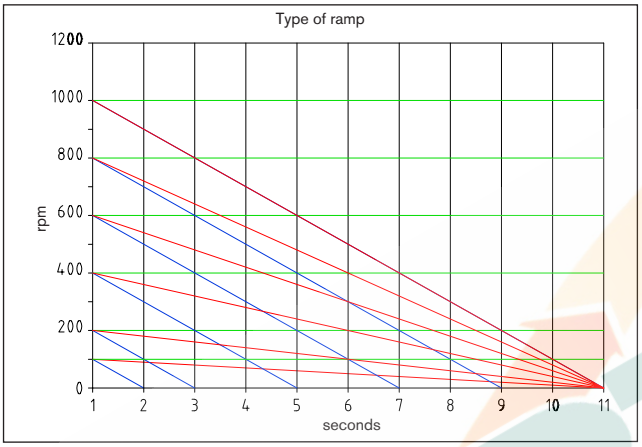
The ramp-supported braking process is activated by a signal safe from cable break. The process is performed via a closed control circuit covering speed versus time. Since a proportional control is not concerned here, the system is safe from power breakdown, i. e. it will work even if the power supply 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 releases, exceeding this range the brake applies 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 maintained. Thus, the brake is engaged more strongly 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.

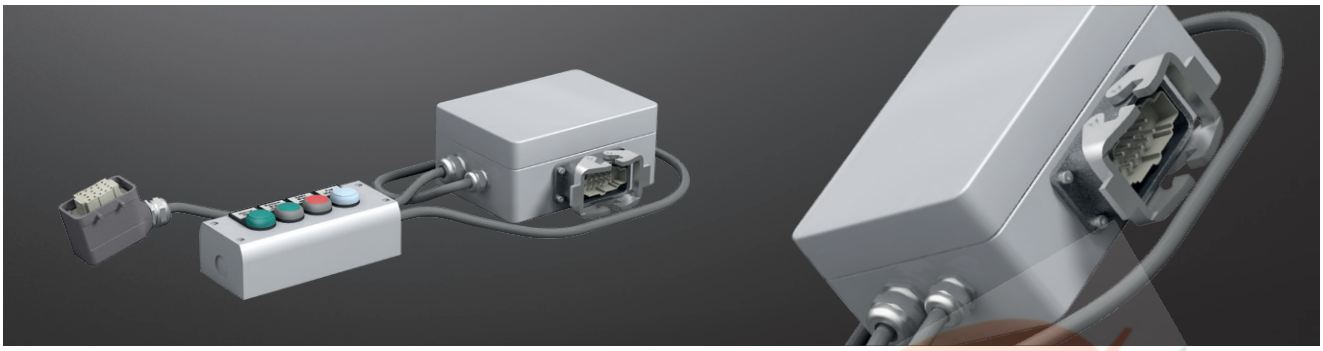
Reverse lock:
It allows for controlling the speed. In case of an unauthorised rotational motion of the system a braking process is activated or the starting of the machine is prevented. A definition of the number of starts preventing a reset if the number is exceeded is to prevent the device from reversing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

Joystick control:
This is an option to use the brake, as an example, as 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 distant place.

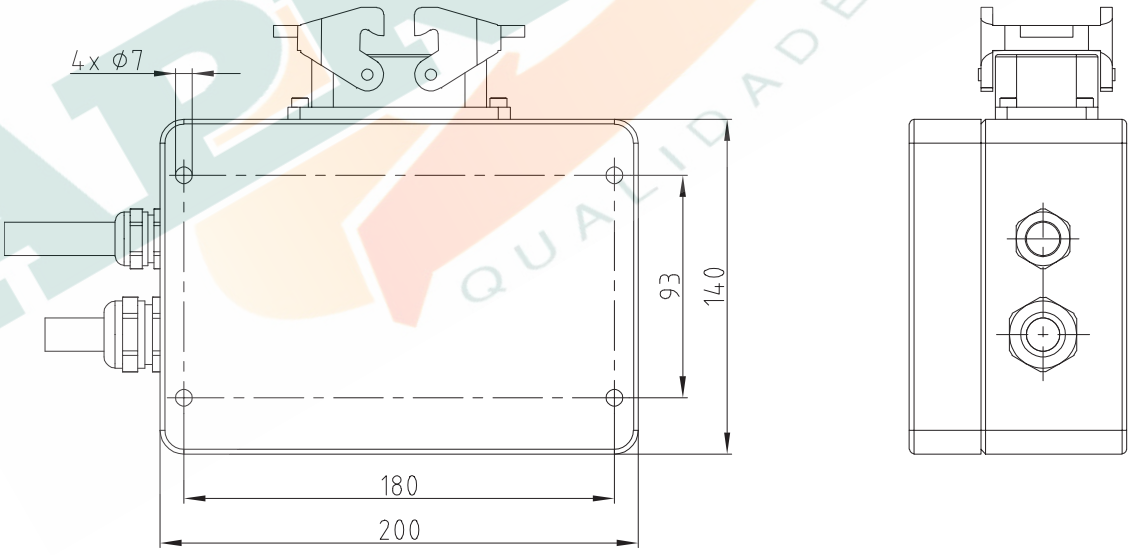
EMB-STOP Control Box
Electronic control system

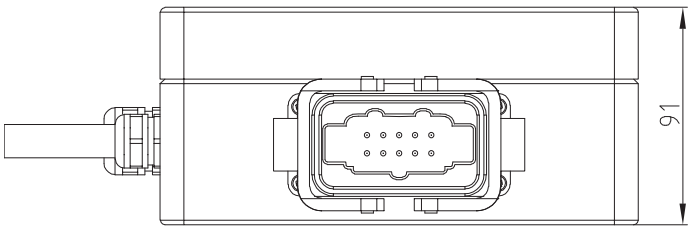
Description of product



The EMB-STOP Control Box can be used for active and passive electromechanical brakes type EMB-STOP. It forms a simplifying interface between the customer's control and the brake EMB-STOP.

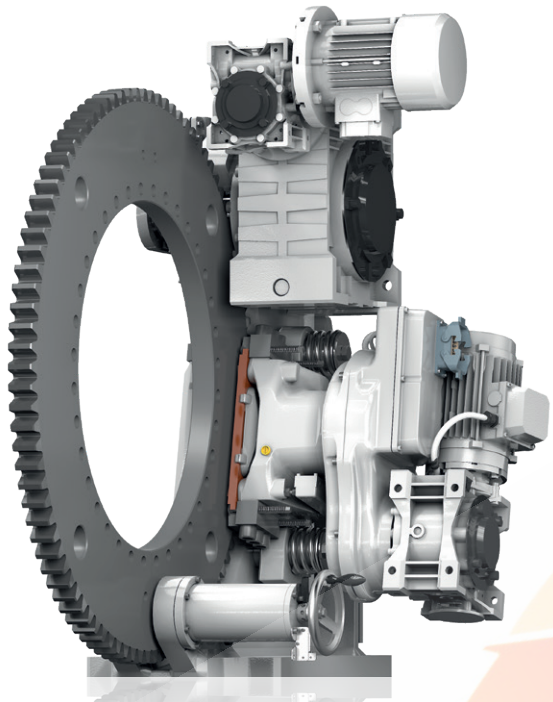
- Simple interface between control and brake → Plug & Play
- Available for active and passive EMB-STOP brakes
- Optionally available with handheld panel → Releasing and applying a brake directly at the source
- Signal control for customised controls
- Control voltage: 24 VDC
- Motor voltage: up to 520 VAC with 50 Hz / 60 Hz
- Relays for potential-free status signals of a brake: brake applied, brake released, wear of brake pad





EMB-STOP Control SBT
Stop-Block-Turn System

SBT Systems



Stop-block-turn systems for ship propulsion from small to large: driving power of up to 25 MW and beyond

Description of product

The SBT systems of KTR are mainly used on propeller shafts in maritime applications: from small yachts through cruise liners to large supply vessels. The functions »stop«, »block« and »turn« of the propeller shaft can optionally be implemented individually or in any combination.

Our broad system construction kit provides high flexibility resulting in a tailor-made overall solution for the drive train.
The brakes, locking pins and turn devices can be combined as required. Here the individual functions can be driven both electrically, hydraulically or purely mechanically. Particularly the all electric version is a quiet and environmentally friendly alternative for state-of-the-art electrical ship propulsion. We provide you with an overall solution of the specified components including control unit, hydraulic power pack, brake disk, etc.

Properties

- Turning torques up to 500 kNm
- Blocking torques up to 1000 kNm
- Braking torques up to 900 kNm
- Back-up limit switch for condition monitoring
- Supply voltages adaptable for drives or HPU
- Mechanical manual emergency operation of components
- High-quality corrosion protection of all components

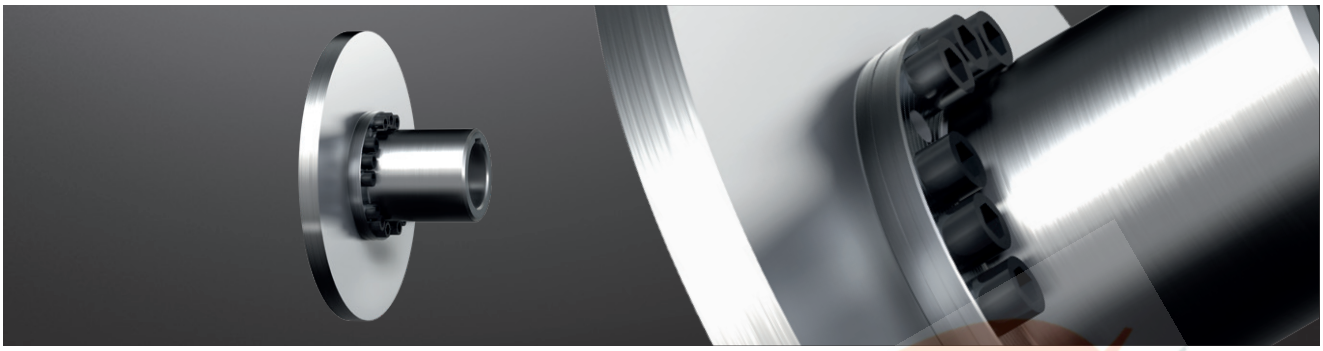
Control (optional)

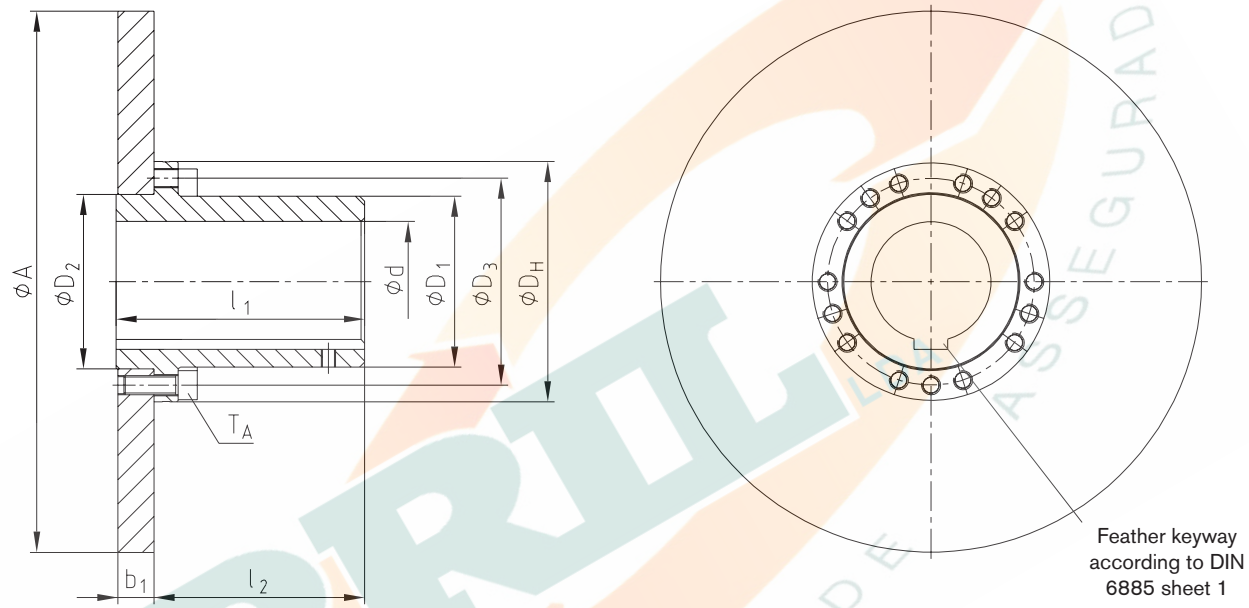
The control unit is selected pursuant to its function and complies with the high standards of classification societies. The system with hydraulic brakes allows to optionally include the hydraulic power pack in the control cabinet. We are familiar with noise reduction elements for low-noise applications or rope damping elements for applications subject to shock load. The components of an SBT system are logically linked within a control unit to ensure safe and failure-free operation of the different functions. This applies both with local control and remote control from the wheelhouse.

For current data please refer to our online catalogue at www.ktr.com

KTR-STOP® NBS
Hubs with brake disks

Description of product

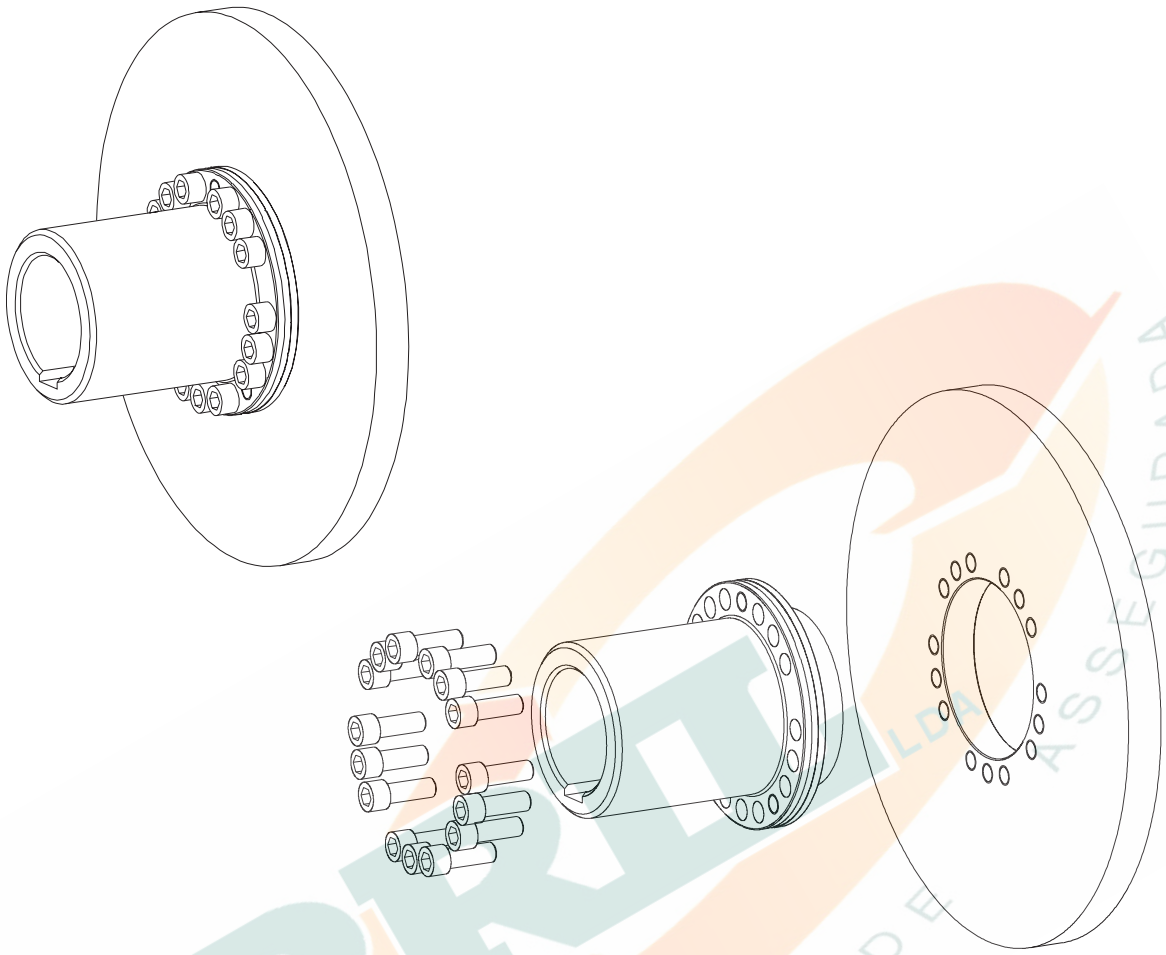




KTR-STOP® NBS													
Size	Dimensions [mm]								Cap screws DIN EN ISO 4762				Max. braking torque [1] [Nm]
	Finish bore d		D_H	D_1	D_2	D_3	l_1	l_2	Thread M	z = number	pitch	Tightening torque T_A [Nm]	
	Min.	Max.											
65	22	65	135	94	96	116	166	135	M10	12	16x22.5°	67	3000
75	30	75	160	108	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 inspected 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 ØA x b_1	Bore d



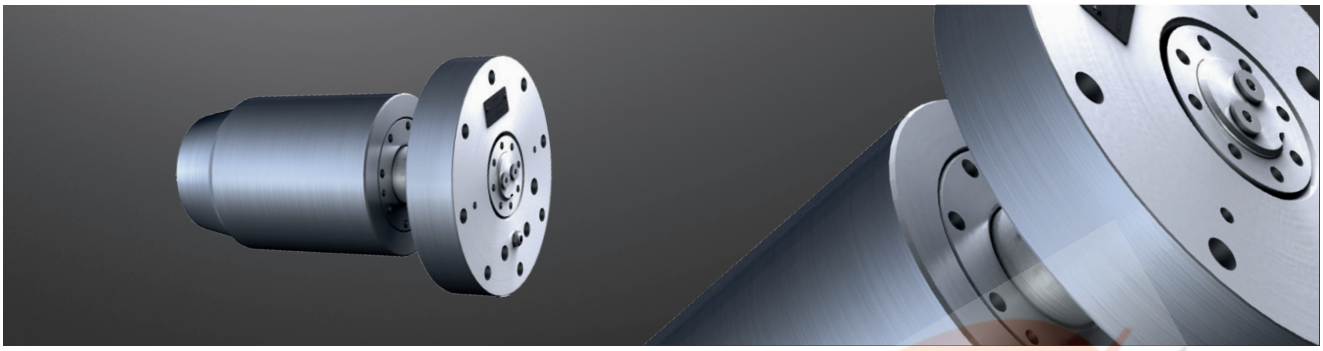
Weights and mass moments of inertia

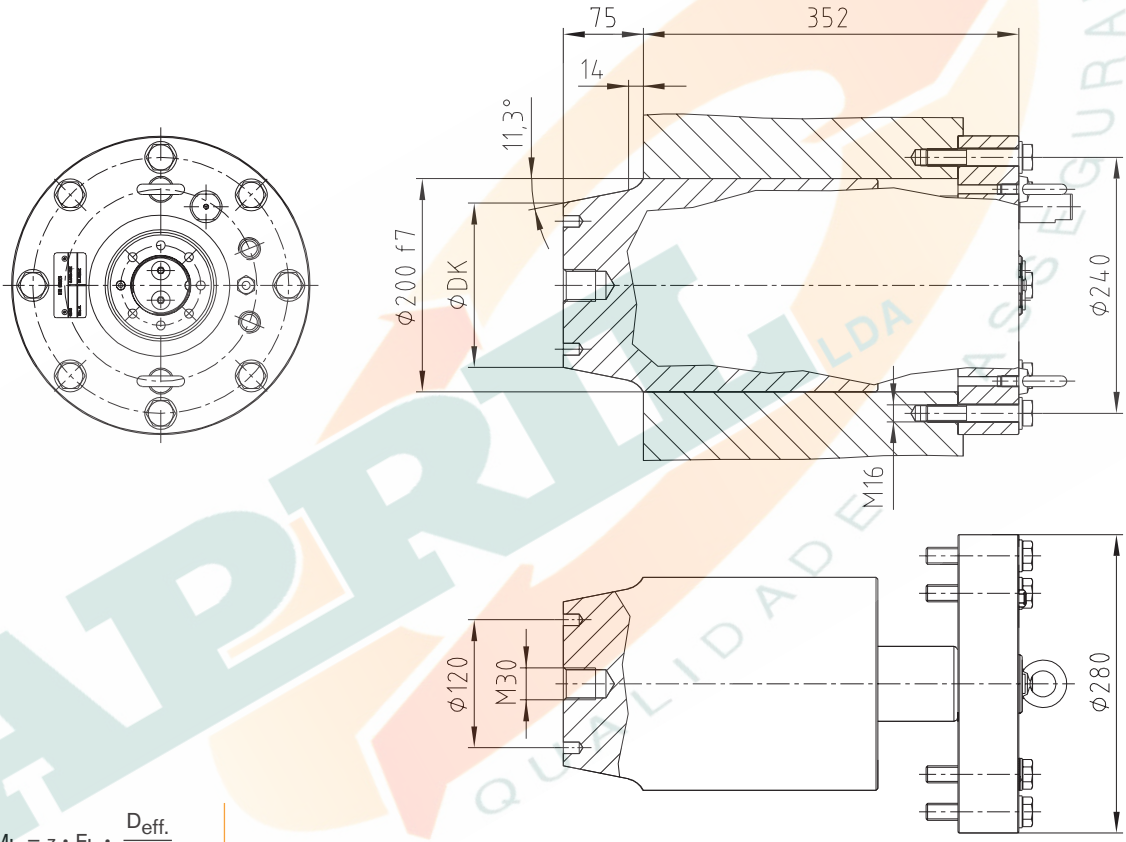
Size / Brake disk ØAxb1	65	75	90	100	110	125	140	160	180
	Weight [1] [kg] / Mass moment of inertia [1] [kgm²]								
355x30	25.6								
	0.349								
400x30	31.4	33.4							
	0.556	0.566							
450x30	38.7	40.6	49.3						
	0.885	0.895	1.009						
500x30		48.7	58.1	59.0	64.1				
		1.354	1.506	1.439	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/weight 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 = Retaining torque [kNm]

z = Number of Rotor Lock

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

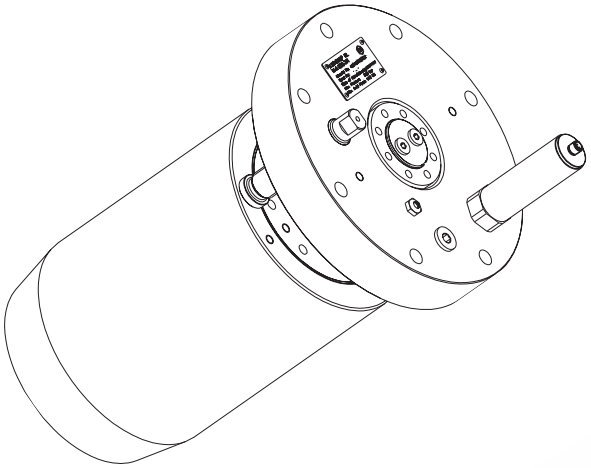
KTR-STOP® RL S			
Weight	Approx. 90 kg	Piston diameter	120 mm
Max. stroke	80 mm	Piston surface fore stroke	113.10 cm²
Max. shear force [1]	2000 kN	Piston surface back stroke	74.61 cm²
Max. operating pressure	250 bars	Oil volume per 1 mm stroke	11.3 cm³
Max. force fore stroke F+	283 kN	Oil volume with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

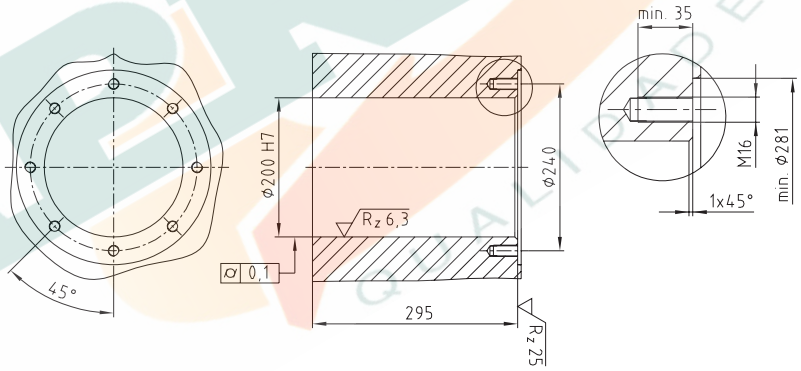
Hydraulic version



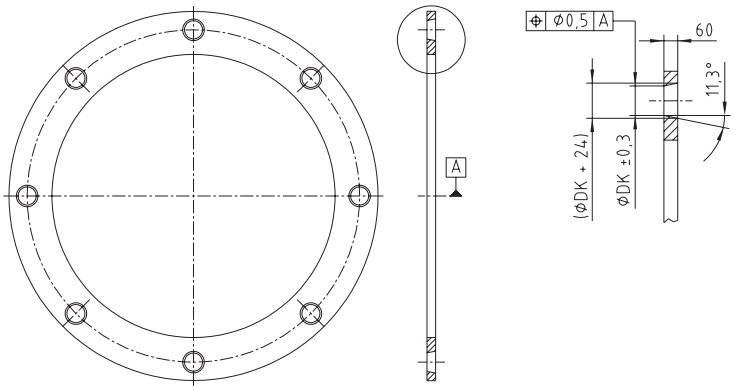
Mechanical version

Connection dimensions of brake

Housing

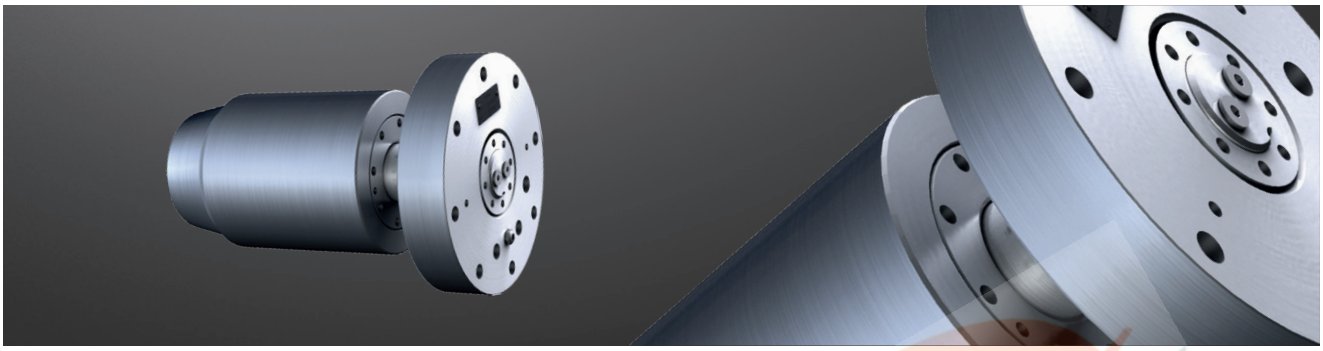


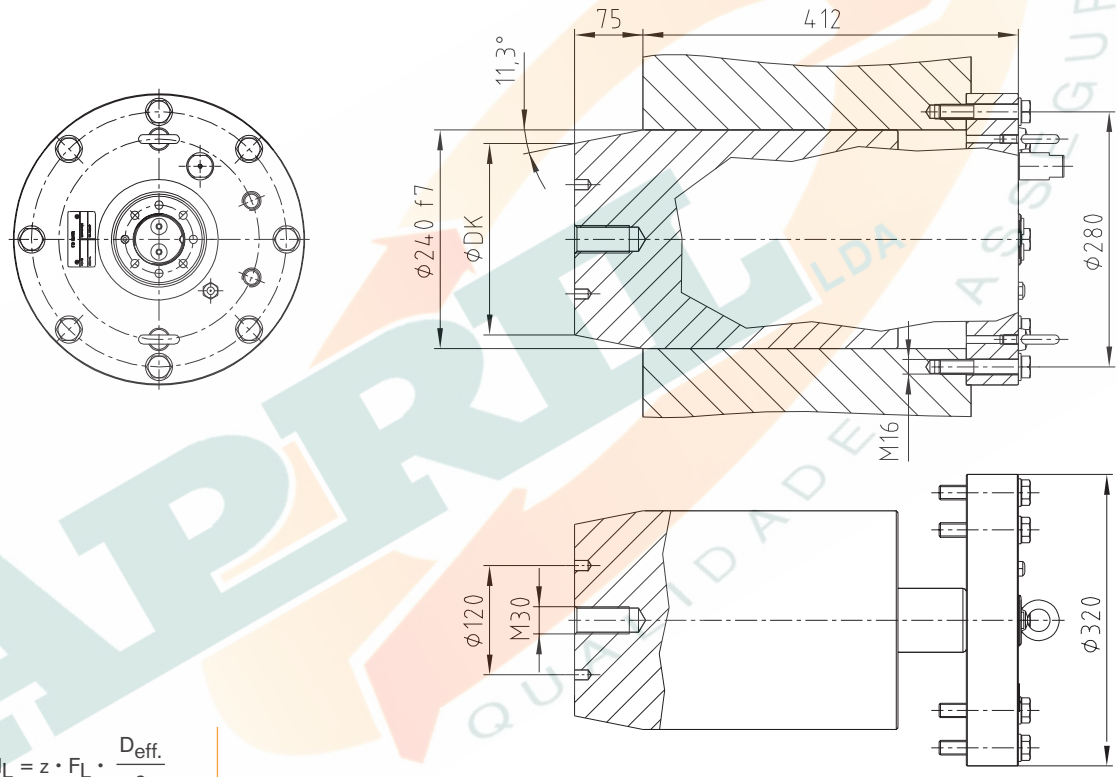
Locking disk



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 = Retaining torque [kNm]

z = Number of Rotor Lock

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

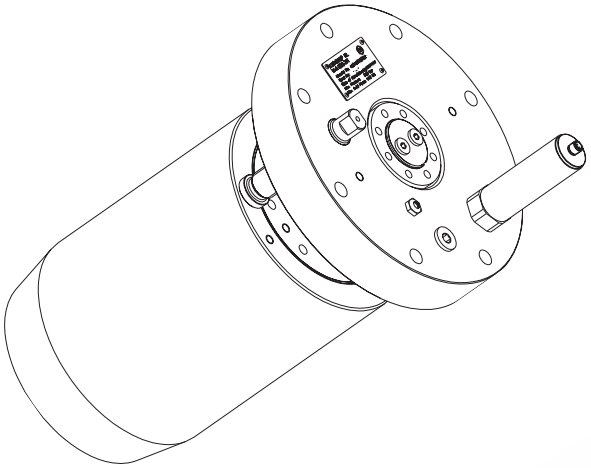
KTR-STOP® RL M			
Weight	Approx. 150 kg	Piston diameter	120 mm
Max. stroke	80 mm	Piston surface fore stroke	113.10 cm²
Max. shear force [1]	4000 kN	Piston surface back stroke	74.61 cm²
Max. operating pressure	250 bars	Oil volume per 1 mm stroke	11.3 cm³
Max. force fore stroke F+	283 kN	Oil volume with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

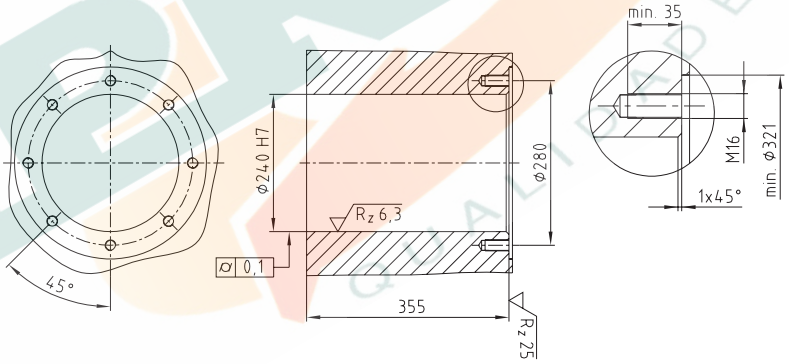
Hydraulic version



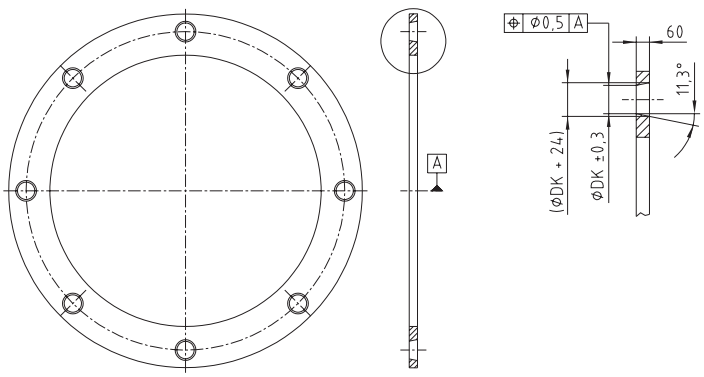
Mechanical version

Connection dimensions of brake

Housing

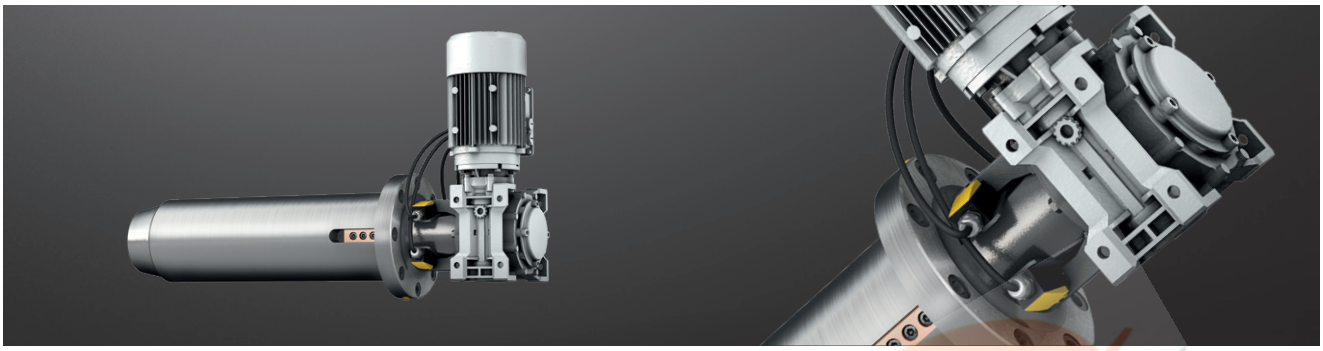


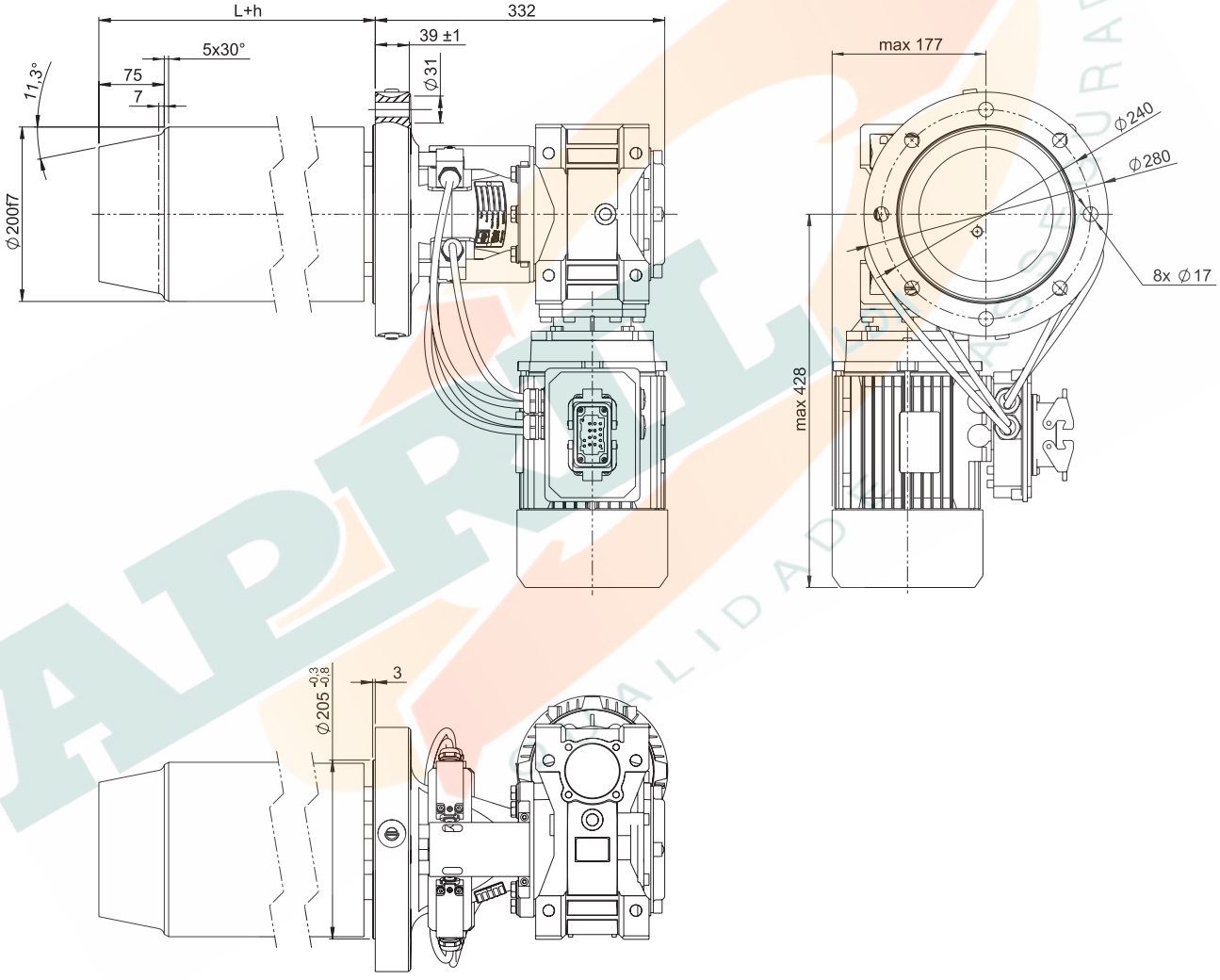
Locking disk



EMB-STOP RL S
Rotor Lock

Electromechanical system



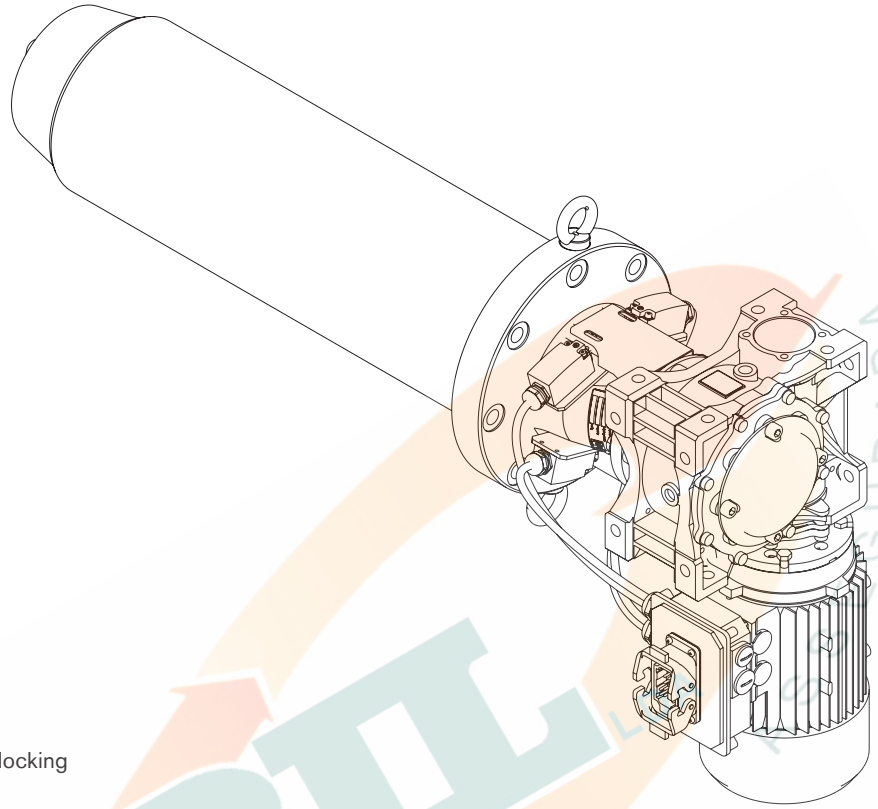


EMB-STOP RL S			
Max. stroke	75 mm	Motor power	1100 W
Max. shear force [1]	2000 kN	Motor voltage	400 VAC, 50 Hz
Pressure force, axial F+	160 kN	Voltage of electric signals	230 VAC/24 VDC
Tensile force, axial F-	160 kN	Speed with 50 Hz	160 mm/min.
Total weight, approx. [2]	150 kg	Size of industrial connector	Han 10B / Han 18EE (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		Electrical application		Mounting length (L)		Contact form (see table)



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

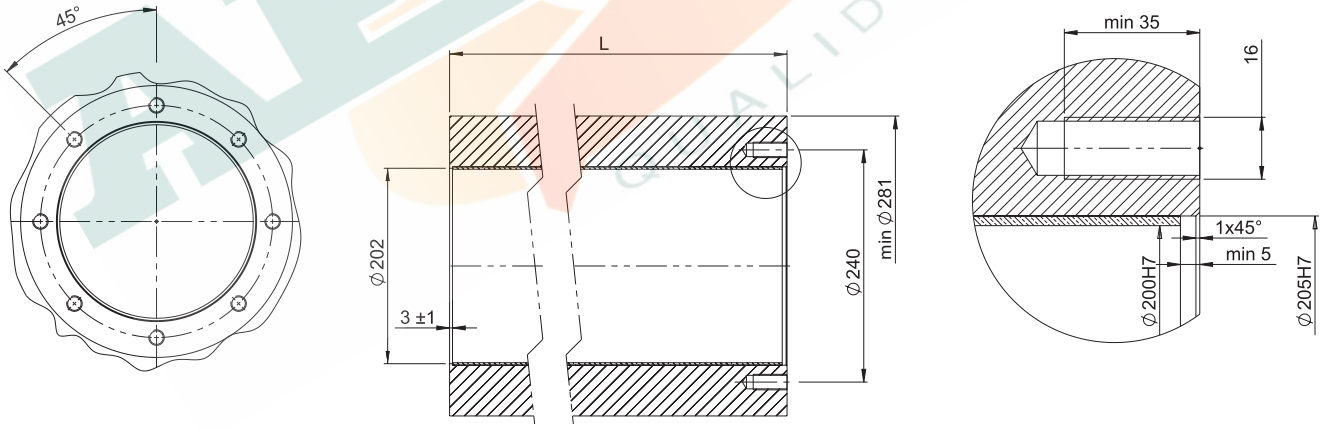
F_L = Shear force [kN]

M_L = Retaining torque [kNm]

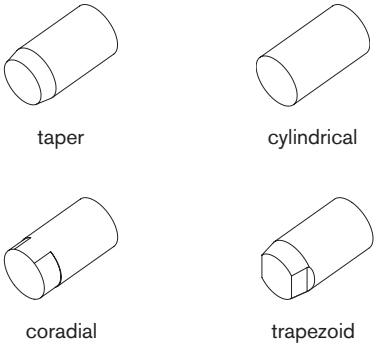
z = Number of Rotor Lock

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

Connection dimensions of brake

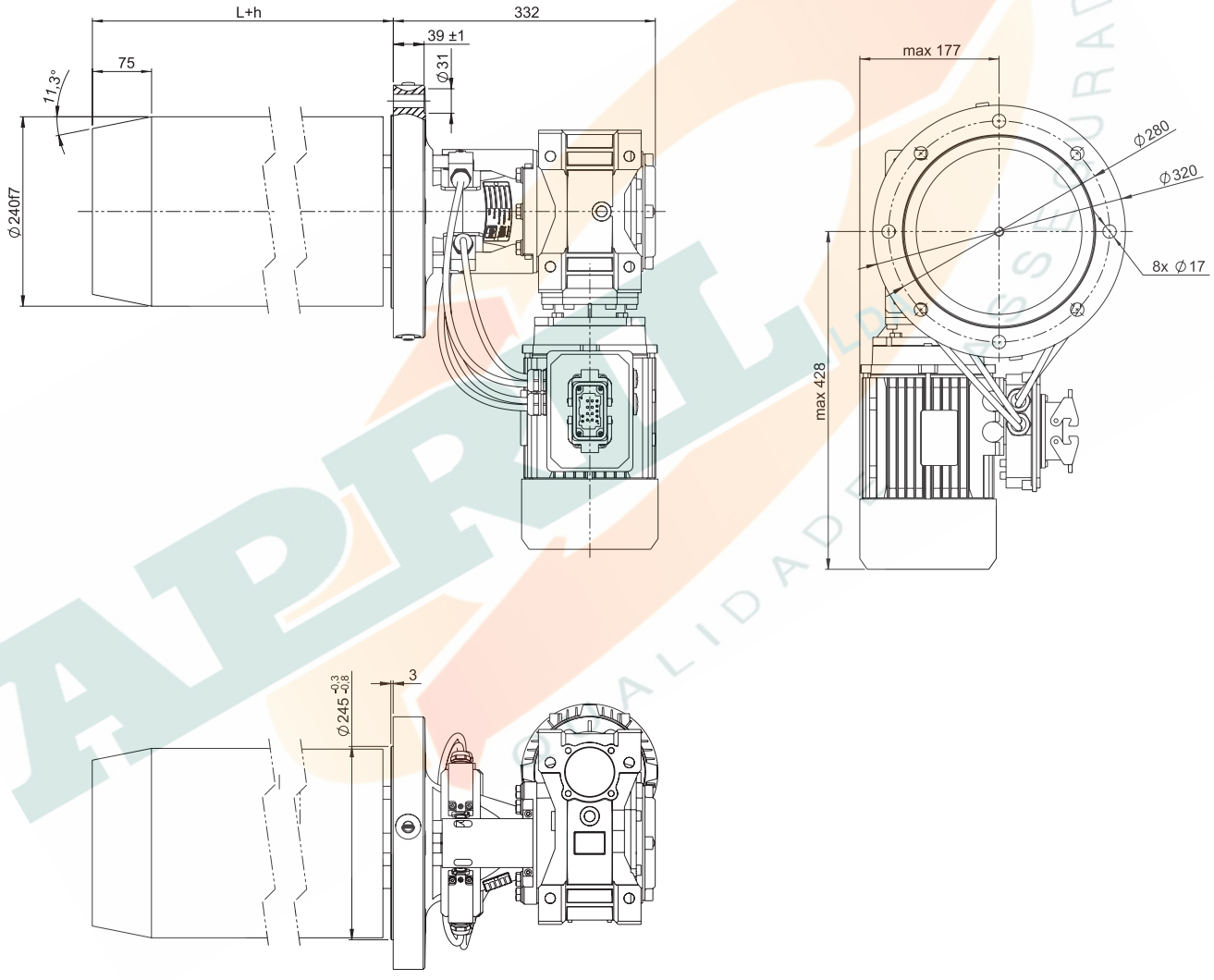


Contact form	xxx
taper	CON
coradial	COR
cylindrical	CYL
trapezoid	TRA



EMB-STOP RL M
Rotor Lock

Electromechanical system

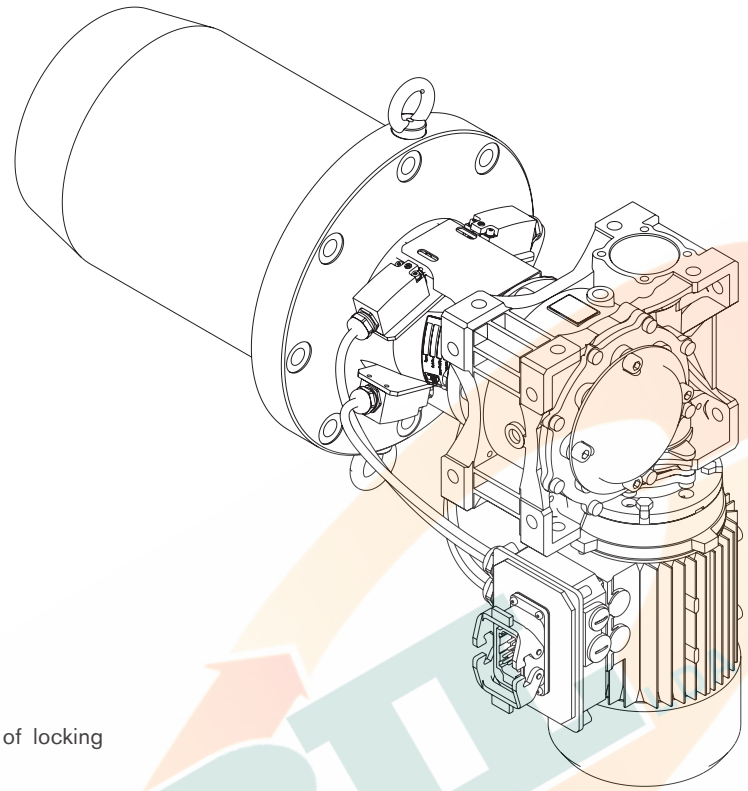


EMB-STOP RL M			
Max. stroke	75 mm	Motor power	1100 W
Max. shear force [1]	4000 kN	Motor voltage	400 VAC, 50 Hz
Pressure force, axial F+	160 kN	Voltage of electric signals	230 VAC/24 VDC
Tensile force, axial F-	160 kN	Speed with 50 Hz	160 mm/min.
Total weight, approx. [2]	190 kg	Size of industrial connector	Han 10B / Han 18EE (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		Electrical application		Mounting length (L)		Contact form (see table)



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

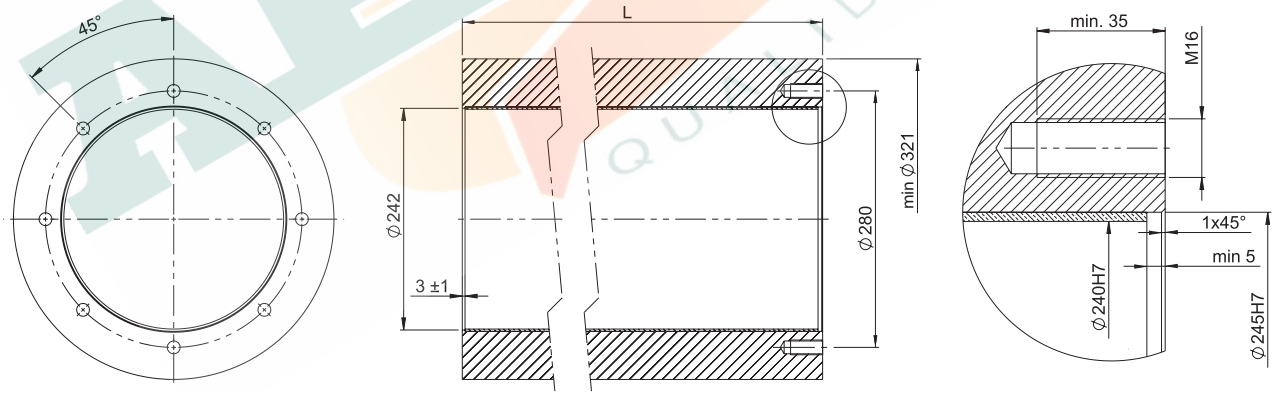
F_L = Shear force [kN]

M_L = Retaining torque [kNm]

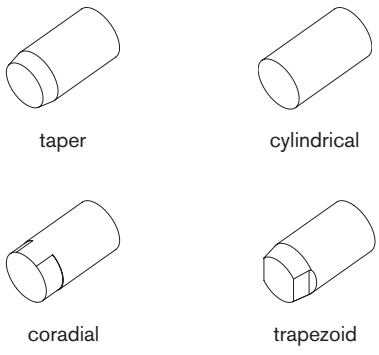
z = Number of Rotor Lock

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

Connection dimensions of brake

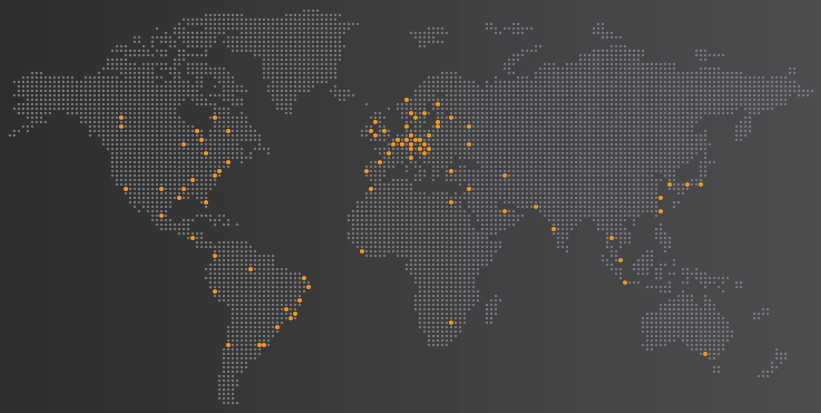


Contact form	xxx
taper	CON
coradial	COR
cylindrical	CYL
trapezoid	TRA



Notes

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
E-mail: j.edzards@ktr.com

Leiter Vertrieb Bremsen Industrie
Thomas Wienkotte, Dipl.-Ing. (FH)
Am Rott 18
D-50171 Kerpen
Phone: +49 2237 971796
Mobile: +49 172 5859448
E-mail: t.wienkotte@ktr.com

KTR worldwide:

Algeria
KTR Algérie
22, Avenue des frères Bouadou
Bir Mourad Rais -16013-Alger.
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
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

Denmark
KTR Systems Danmark ApS
Vejlsøvej 51, Bygning N
8600 Silkeborg
Phone: +45 39 39 10 50
E-mail: ktr-dk@ktr.com

Finland
KTR Finland OY
Tiistinniityntie 4
FIN-02230 Espoo
Phone: +358 2 07 41 46 10
E-mail: ktr-fi@ktr.com

France
KTR France SAS
5 Chemin de la Brocardière
CS 71359
F-69573 DARDILLY CEDEX
Phone: +33 4 78 64 55 26
Fax: +33 4 78 64 54 31
E-mail: ktr-fr@ktr.com

India
KTR Couplings (India) Pvt. Ltd.,
T - 36 / 37 / 38 / 39, MIDC Bhosari,
Pune - 411 026
Phone: +91 20 27 12 73 24 / 25
Fax: +91 20 27 12 73 23
E-mail: ktr-in@ktr.com;
india.sales@ktr.com

Italy
KTR Systems GmbH
Sede Secondaria Italia
Via Giacomo Brodolini, 8
I - 40133 Bologna (BO)
Phone: +39 051 613 32 32
Fax: +39 051 298 55 77
E-mail: ktr-it@ktr.com

Japan
KTR Japan Co., Ltd.
c/o The Sumitomo Warehouse Co., Ltd.
Kobe Branch, Chuo Logistics Center L-6
7-14 Minatojima, Chuo-ku, Kobe City,
Hyogo 650-0045 Japan
Phone: +81 78 381 84 01
Fax: +81 78 945 85 60
E-mail: ktr-jp@ktr.com

Korea
KTR Korea Ltd.
#604, Songwon bldg., 89-10, Gal-
maejungang-ro, Guri-si, Gyeonggi-do,
11901 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
Oosterveldsingel 3
NL-7558 PJ Hengelo (O)
Phone: +31 74 2553680
E-mail: ktr-nl@ktr.com

Norway
KTR Systems Norge AS
Lahaugmoveien 81
N-2013 Skjetten
Phone: +47 64 83 54 90
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
E-mail: ktr-pl@ktr.com

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,
Spartan 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 322
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 7010
S-187 11 Täby
Phone: +46 86 25 02 90
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,
Xitun Dist., Taichung City 40768,
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

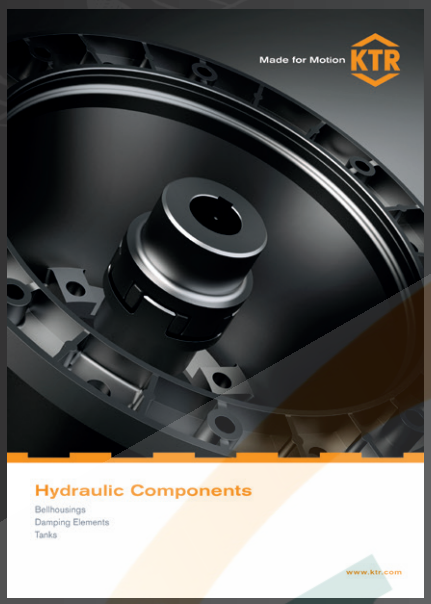
USA
KTR Corporation
122 Anchor Road
Michigan City, Indiana 46360
Phone: +1 2 19 8 72 91 00
Fax: +1 2 19 8 72 91 50
E-mail: ktr-us@ktr.com

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 an overview. 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

Made for Motion KTR