



01 SAFETY BRAKES

> 安全制动器

SB SBD Series

SB系列安全制动器 002

SBD-A系列安全制动器 005

SBD-B系列安全制动器 007

SBD-C系列安全制动器 009

SBD-D系列安全制动器 011

SB SBD系列安全制动器 SB SBD SERIES SAFETY BRAKES

*应用 APPLICATION

- SB、SBD系列液压安全（紧急）制动器，是一种使用在低速轴（卷筒轴）上的大功率制动装置，可广泛用于大中型起重机、港口装卸机械起升以及臂架俯仰机构低速轴的紧急安全制动，矿用卷扬机、提升机和大功率倾角式皮带运输机的工作制动和紧急安全制动，缆车和索缆起重机驱动机构的安全制动，铸造起重机等特种起重机起升机构低速轴的安全（紧急）制动。

APPLICATION

- Hydraulic safety (emergency) brakes are high-power braking devices which can be widely used as emergency safety brake on low speed shafts for the lifting control and pitching mechanism of various large and middle crane, port handling machinery. They are also applied for the same purpose for mine winder, lifter, elevators, belt conveying machinery, cable cars, foundry and cable cranes and so on.

*主要特点 MAIN FEATURE

- 常闭式设计，安全可靠；特制碟簧施力制动，液压驱动释放。（液压站选型详见液压站样本）。
- 动作灵敏，闭合（上闸）时间短。
- 可选配开闸限位开关和衬垫磨损极限限位开关，可进行联锁保护和故障显示。
- 高性能无石棉硬质摩擦衬垫，摩擦系数稳定，不损伤制动盘且对水介质和盐雾（海水）不敏感。
- 合理的密封结构设计和进口铭牌密封件，效果好，寿命长。
- 安装位置灵活，使用、调整、维护简单。

MAIN FEATURE

- Normally closed design, safe and reliable; specially-designed disc springs applied. hydraulic driving. Type selection of hydraulic power unit see "Manual for hydraulic power unit".
- Swift actions and short braking time.
- Be able to optionally equip with release limit and pad wear limit switch, which can realize signal indication and interlocking protection.
- Brake lining is made from non-asbestos hard material, which has high and stable friction performance, and it is insensitive to water, salt and other environmental agents.
- Excellent sealing ensure the brake long service life.
- Installing position is flexible, operation, adjustment and maintenance are easy.

*符合标准 STANDARDS COMPLIANT

- 安全制动器技术要求符合JB/T10917-2008标准。

STANDARDS COMPLIANT

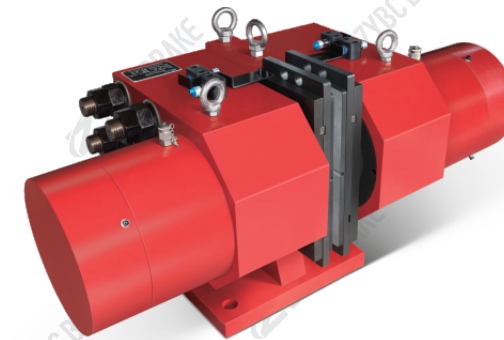
- The technology requirements of safety brakes comply with JB/T10917-2008 standard.

*使用条件 OPERATING CONDITION

- 环境温度：-20℃~+40℃
- 相对湿度：≤90%
- 可选配液压站（液压站选型详见液压站样本）
- 有特殊要求时，在订货时协商确定。

OPERATING CONDITION

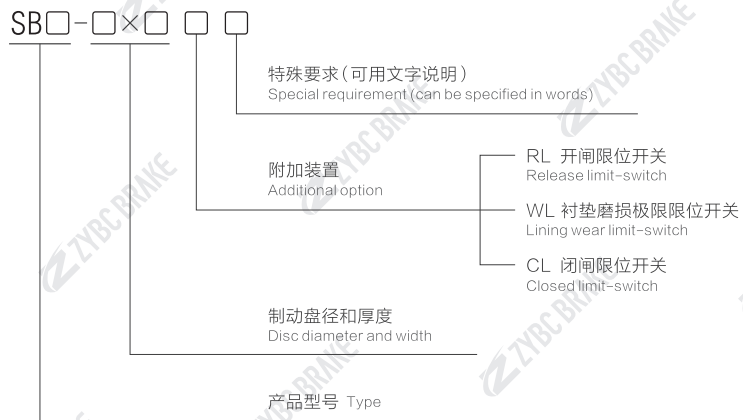
- Ambient temperature: -20℃~+40℃
- Relative humidity: ≤90%
- Hydraulic power unit can be selected. Type selection of hydraulic power unit see 'Manual for hydraulic power unit.
- Special requirements can be discussed before production.



> SB系列 Series

SB系列安全制动器 SB SERIES SAFETY BRAKES

* 订货标记 ORDER MARK



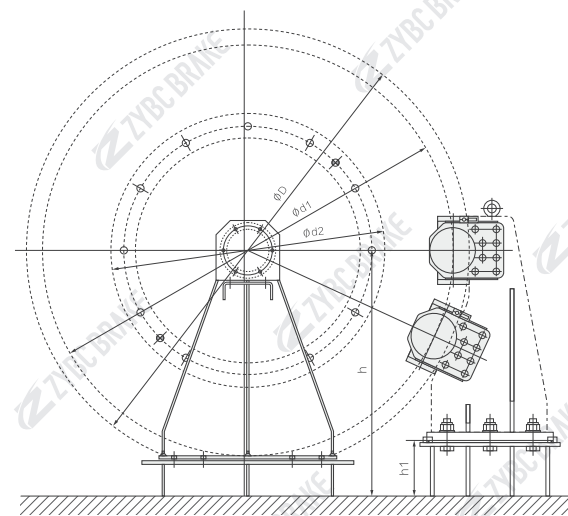
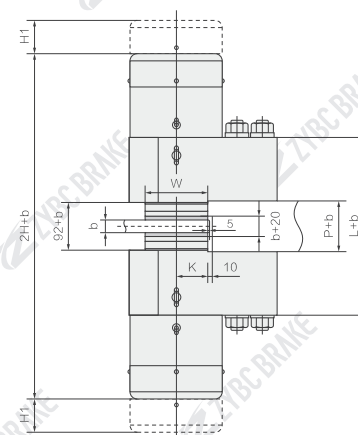
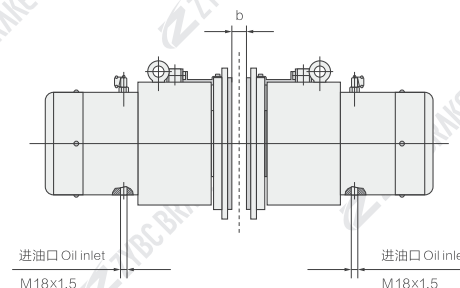
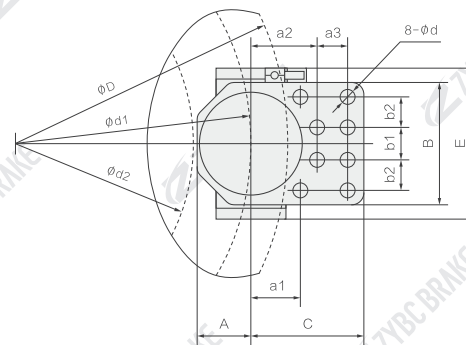
* 订货示例 ORDER EXAMPLE

- SB250-2200×40 RL 表示额定夹紧力为250KN，制动盘直径为2200mm，盘厚为40mm，带开闸限位开关。

ORDER EXAMPLE

- SB250-2200×40 RL, Rated clamping force is 250KN, braking disc diameter is 2200mm, disc thickness is 40mm, with release limit switch.

* 安装及外形尺寸 OUTLINE AND INSTALLATION DIMENSION



安装方式 Installation
h, h1 由用户确定 h1 Determined by the user

* SB 系列安全制动器技术参数 TECHNICAL DATA OF SB SERIES SAFETY BRAKES

制动器型号 Brake type	夹紧力 F Clamp force (KN)	释放压力 Release pressure (bar)	开闸油量 Release oil volume (ml)	退距 Clearance (mm)	摩擦系数 μ Friction coefficient	安装螺栓/性能等级/安装扭矩 Requested bolts; performance class; Installation torque	不含支架重量 Weight bracket excluded (kg)
SB50	50	110	30	1-2	0.36	8-M20、10.9、680	90
SB100	100	120	50	1-2	0.36	8-M24、10.9、1200	150
SB160	160	120	70	1-2	0.36	8-M30、10.9、2200	310
SB250	250	130	95	1-2	0.36	8-M36、10.9、3540	452
SB315	315	140	115	1-2	0.36	8-M36、10.9、3540	672
SB400	400	120	170	1-2	0.36	8-M48、10.9、7400	1100
SB500	500	140	170	1-2	0.36	8-M48、10.9、7400	1200

制动力矩 Brake torque $Nm = F \times \mu \times d1$ Torque in $Nm = F \times \mu \times d1$

* 外形尺寸表 DIMENSIONS (mm)

型号 Type	A	a1	a2	a3	b1	b2	B	C	d	k	P	L	E	W	H	H1
SB50	77	77	90	38	38	38	154	150	20.5	56	102	300	240	110	310	80
SB100	95	95	105	45	55	45	190	180	25	71	102	348	286	140	360	85
SB160	110	120	135	65	70	65	260	235	31	87	106	412	370	170	410	95
SB250	130	120	160	75	80	75	300	275	37	87	106	456	370	170	470	110
SB315	140	175	205	85	90	82.5	335	330	37	137	106	476	410	270	500	110
SB400	170	180	220	120	110	110	440	420	50	137	142	602	546	270	560	115
SB500	170	180	220	120	110	110	440	420	50	137	142	682	542	270	600	115

* 与制动盘有关的尺寸 RELATIVE DIMENSIONS OF BRAKE DISC (mm)

型号 Type	b			D	d1	d2 max
SB50	30	36	40	≥ 500	D-120	D-300
SB100	30	36	40	≥ 500	D-150	D-380
SB160	30	36	40	≥ 600	D-180	D-440
SB250	30	36	40	≥ 600	D-180	D-480
SB315	30	36	40	≥ 1200	D-280	D-600
SB400	30	36	40	≥ 1800	D-280	D-660
SB500	30	36	40	≥ 1800	D-280	D-660

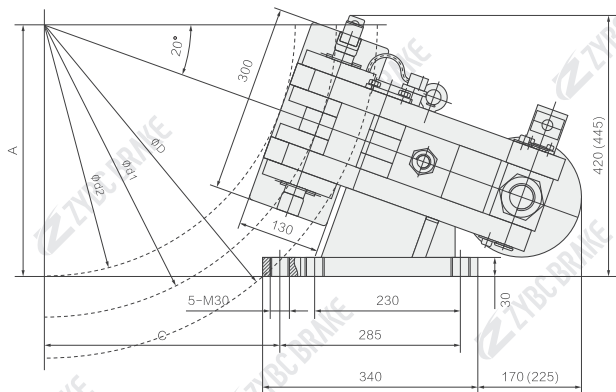
• d1=理论摩擦直径
d1=the theoretical friction diameter.

• d2=允许最大的卷筒或联接毂外径
d2=max. allowable drum or hub diameter.

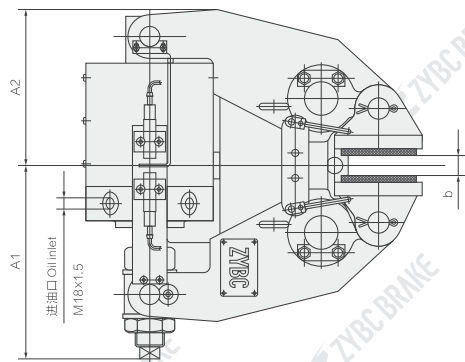
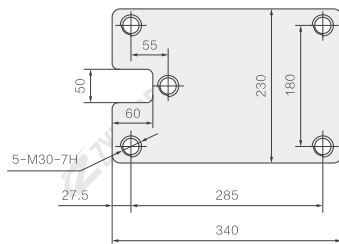
• D: 如为其它盘径, 请与我们联系。
For other disc diameters please contact us.

SBD□-A系列安全制动器 SBD□-A SERIES SAFETY BRAKES

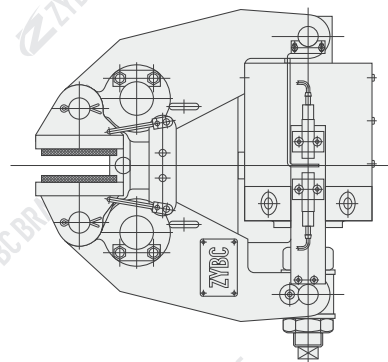
*安装及外形尺寸 OUTLINE AND INSTALLATION DIMENSION



底板连接尺寸
Base plate connection dimensions



安装型式 Version: II型



安装型式 Version: I型

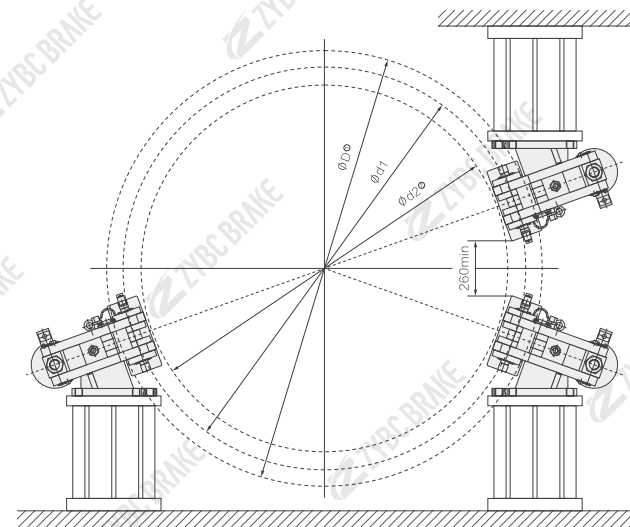
•注：括号内的尺寸用于SBD315-A
Note: Dimensions in bracket are used in SBD315-A.

*安装示意图 INSTALLATION DIAGRAM

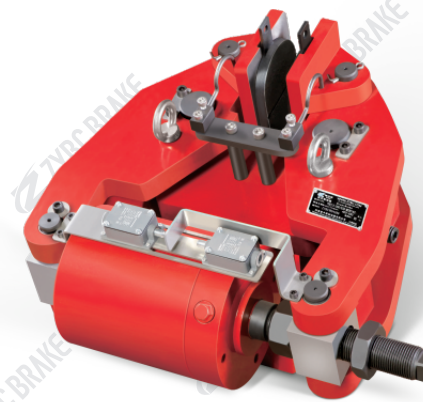
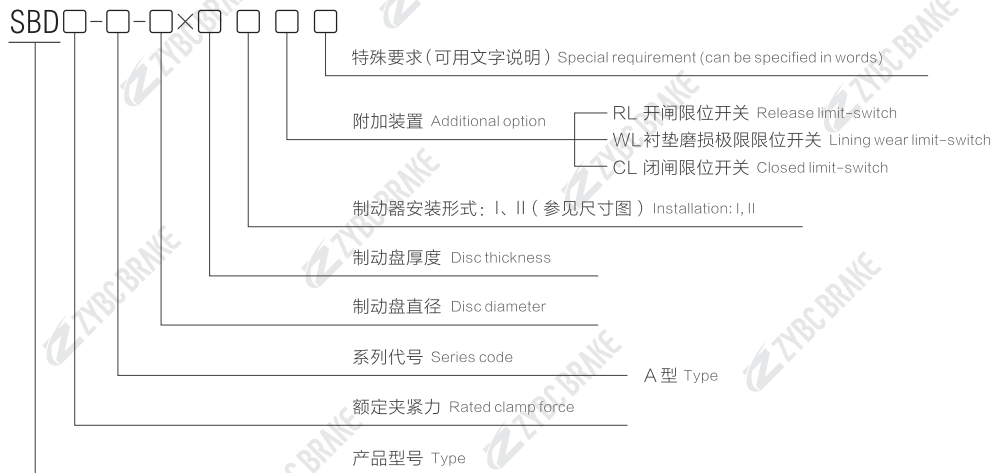
- 制动力矩: $M = \mu \times d1 \times F$ (Nm)
- 式中: μ -摩擦系数计算取值 $\mu = 0.36$
 $d1$ -制动盘计算摩擦直径, $d1 = D - 135$ (mm),
 或 $D - 155$ (mm) (后者针对SBD315-A)
 F -制动时总夹紧力 (KN)
- 注: 1) 制动盘直径用于 $800 \leq \phi D \leq 1800$ (mm)
 2) $d2$ -允许的最大卷筒或联接鞍外径, $d2 = D - 270$ (mm)

INSTALLATION DIAGRAM

- Braking torque: $M = \mu \times d1 \times F$ (Nm)
- In it: μ -the value of friction coefficient $\mu = 0.36$
 $d1$ -disc friction diameter $d1 = D - 135$ (mm)
 or $D - 155$ (mm) (the latter is specially used in SBD315-A)
 F -total clamp force (KN)
- Notes: 1) D -Brake disc diameter for $800 \leq \phi D \leq 1800$ (mm)
 2) $d2 = d2 = \max.$ allowable drum or hub diameter $d2 = D - 270$ (mm)



* 订货标记 ORDER MARK



SBD□-A系列 Series

* 订货示例 ORDER EXAMPLE

- SBD250-A-1600×30 IRL 表示额定夹紧力为250KN，带开闸限位开关，I型安装的A型安全制动器，制动盘直径为1600mm，盘厚为30mm。

ORDER EXAMPLE

- SBD250-A-1600×30 IRL means its rated clamping force is 250KN with release limit switch and A-type safety brake of I version installation. The brake disc diameter is 1600mm and the disc thickness is 30mm.

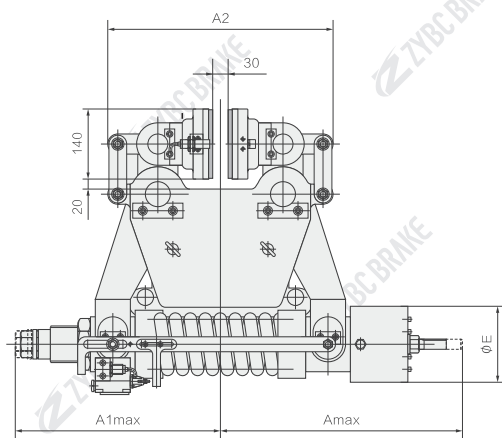
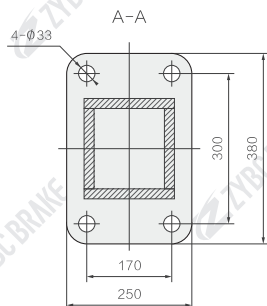
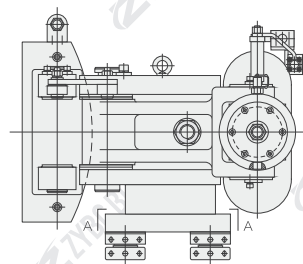
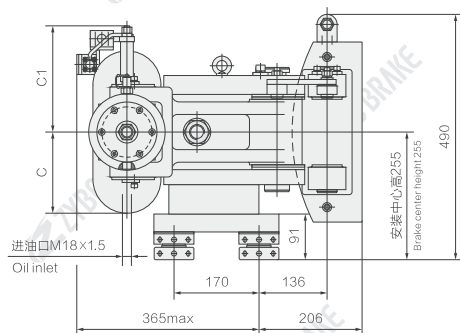
* SBD□-A 系列安全制动器技术参数及安装尺寸 TECHNICAL DATA AND DIMENSIONS OF SBD□-A SERIES SAFETY BRAKES

制动器型号 Brake type	总夹紧力 Total clamp force (KN)	制动力 Braking force (KN)	油缸工作压力 Cylinder pressure (bar)	开闸油量 Oil volume (ml)	开闸间隙 Released clearance (mm)	安装及外形尺寸 Dimensions (mm)							重量 Weight (kg)	
						A	C	d1	d2 max	D	A1	A2		b
SBD100-A	100	72	80	90	0.75~1.5	0.171φD+220	0.470φD-127	φD-135	φD-270	φ800≤φD ≤φ1800	295	220	30 (25) (36)	195
SBD125-A	125	90	90	90	0.75~1.5						315	220		195
SBD160-A	160	115	110	75	0.75~1.25						315	235		195
SBD200-A	200	144	100	120	0.75~1.5						315	235	235	
SBD250-A	250	180	120	100	0.75~1.25						350	258	235	
SBD315-A	315	220	110	160	0.75~1.25	0.171φD+238		φD-155	φD-310		355	260	30(25)	280

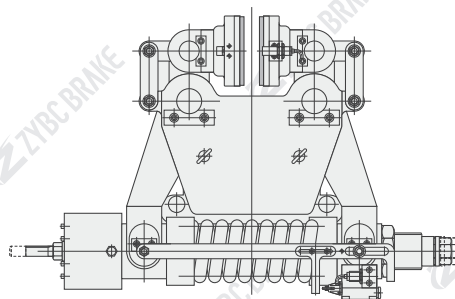
注: SBD□-A系列安全制动器为原型号SBD系列安全制动器 Note: The original types of SBD□-A series safety brakes are SBD.

SBD□-B系列安全制动器 SBD□-B SERIES SAFETY BRAKES

*安装及外形尺寸 OUTLINE AND INSTALLATION DIMENSION



安装型式 Version: II型



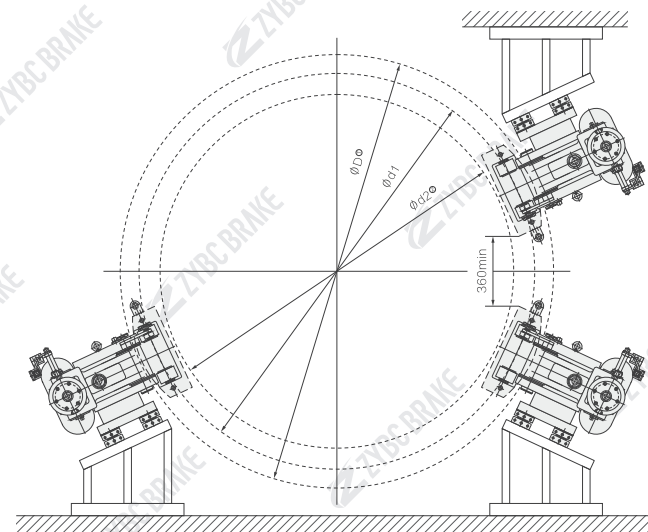
安装型式 Version: I型

*安装示意图 INSTALLATION DIAGRAM

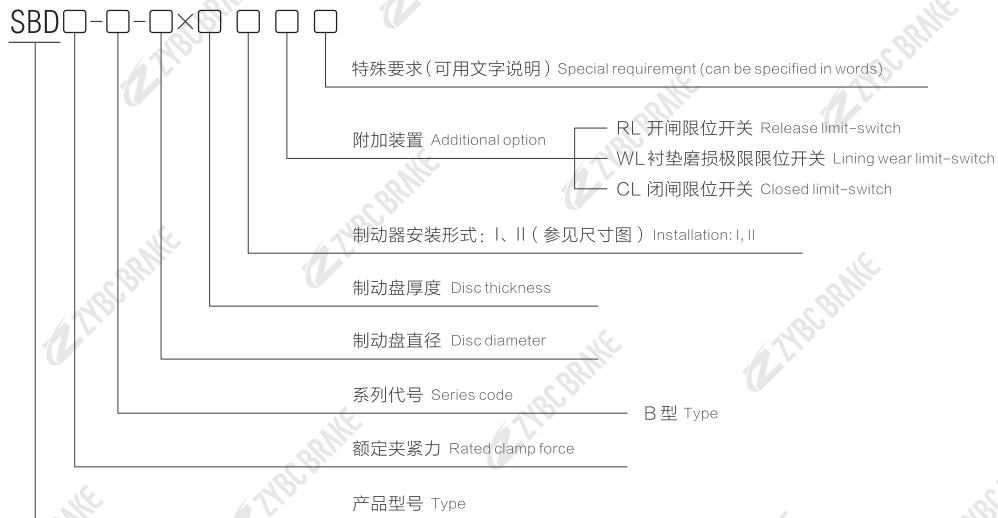
- 制动力矩: $M = \mu \times d1 \times F$ (Nm)
- 式中: μ -摩擦系数计算取值 $\mu = 0.36$
 $d1$ -制动盘计算摩擦直径, $d1 = D - 150$ (mm)
 F -制动时总夹紧力 (KN)
- 注: 1) 制动盘盘径 $D \geq \phi 800$ (mm)
 2) $d2$ -允许的最大卷筒或联接鞍外径, $d2 = D - 360$ (mm)

INSTALLATION DIAGRAM

- Braking torque: $M = \mu \times d1 \times F$ (Nm)
- In it: μ -the value of friction coefficient $\mu = 0.36$
 $d1$ -disc friction diameter $d1 = D - 150$ (mm)
 F -total clamp force (KN)
- Notes: 1) D -Brake disc diameter for $D \geq \phi 800$ (mm)
 2) $d2 = d2 = \max.$ allowable drum or hub diameter $d2 = D - 360$ (mm)



* 订货标记 ORDER MARK



SBD□-B系列 Series

* 订货示例 ORDER EXAMPLE

- SBD80-B-1250×30 I RL 表示额定夹紧力为80KN, 带开闸限位开关, I型安装的B型安全制动器, 制动盘直径为1250mm, 盘厚为30mm。

ORDER EXAMPLE

- SBD80-B-1250×30 I RL means its rated clamping force is 80KN with release limit switch and B-type safety brake of I version installation. The brake disc diameter is 1250mm and the disc thickness is 30mm.

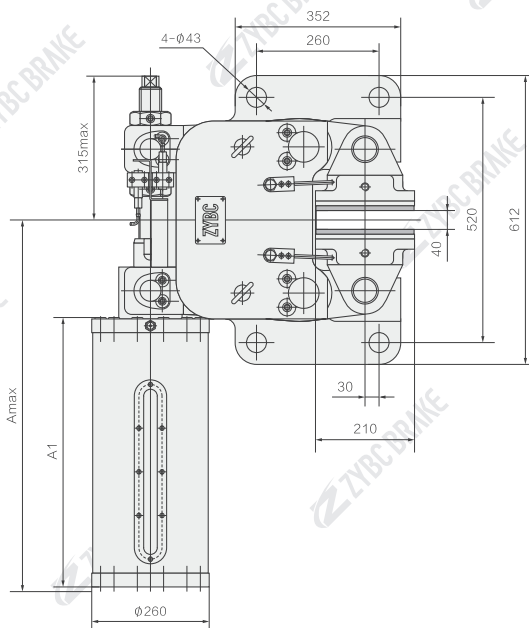
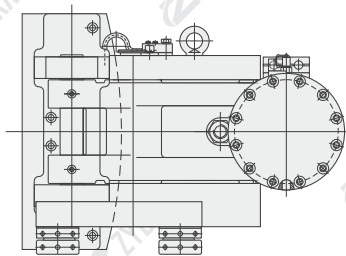
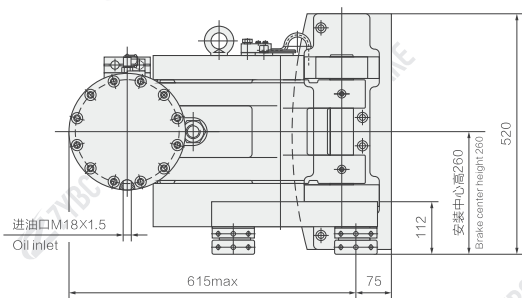
* SBD□-B系列安全制动器技术参数及安装尺寸 TECHNICAL DATA AND DIMENSIONS OF SBD□-B SERIES SAFETY BRAKES

制动器型号 Brake type	额定夹紧力 Rated clamp force (KN)	制动力 Braking force (KN)	油缸工作压力 Cylinder pressure (bar)	开闸油量 Oil volume (ml)	开闸间隙 Released clearance (mm)	安装及外形尺寸 Dimensions (mm)							重量 Weight (kg)
						A max	A1max	A2	C	C1	ΦE	D	
SBD80-B	80	57	95	55	1~2	470	390	450	115	150	120	≧Φ800	270
SBD160-B	160	115	95	115	1~2	485	415	460	165	215	155	≧Φ800	310

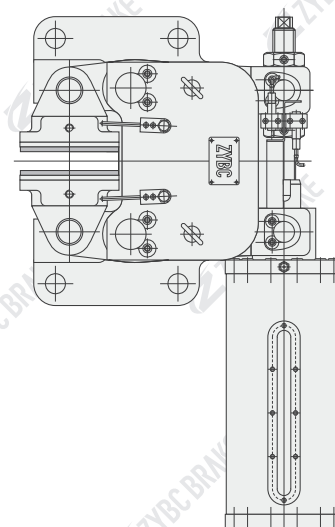
- 1) SBD□-B系列安全制动器为原型号SBB系列安全制动器。 1) The original types of SBD□-B series safety brakes are SBB.
- 2) 摩擦系数: 静态0.4, 动态0.36。 2) Friction coefficient: Static 0.4, dynamic 0.36.
- 注: 具体型号, 结构外形尺寸保留更改的权利。 Note: The size of the specific type and structure should be retained.

SBD□-C系列安全制动器 SBD□-C SERIES SAFETY BRAKES

*安装及外形尺寸 OUTLINE AND INSTALLATION DIMENSION



安装型式 Version: II型



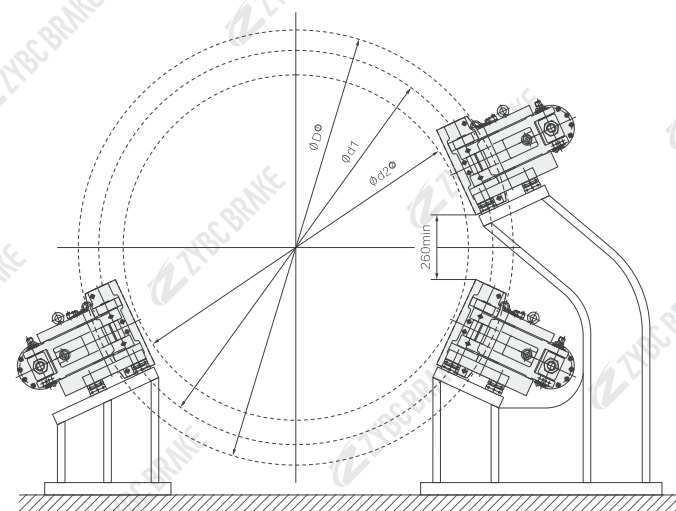
安装型式 Version: I型

*安装示意图 INSTALLATION DIAGRAM

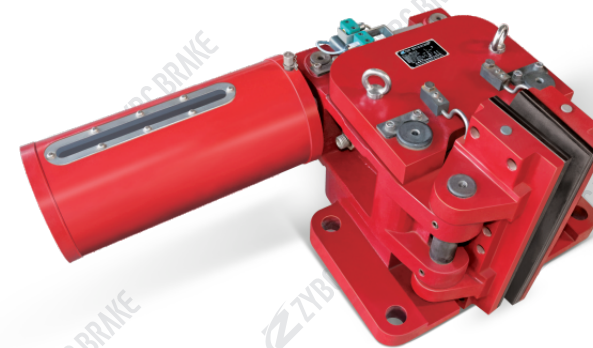
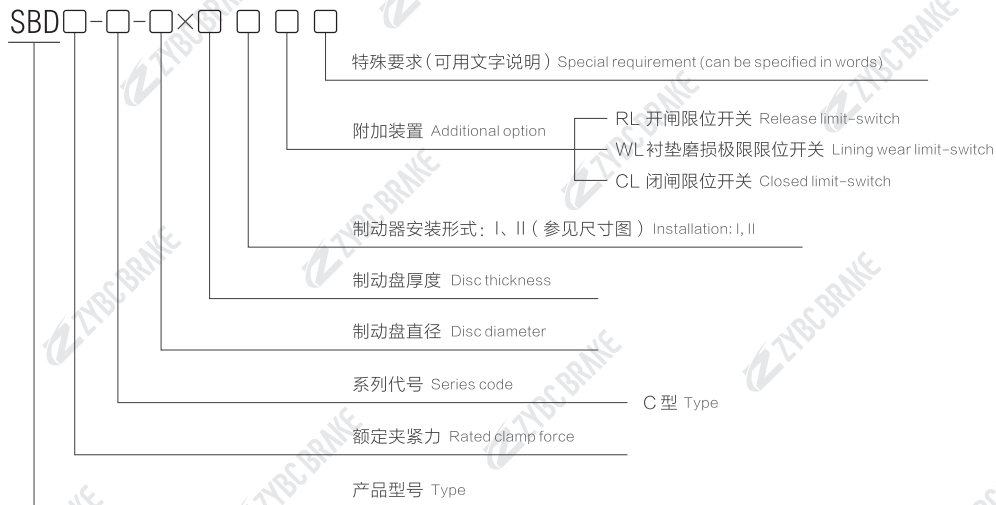
- 制动力矩: $M = \mu \times d1 \times F$ (Nm)
- 式中: μ -摩擦系数计算取值 $\mu = 0.36$
 $d1$ -制动盘计算摩擦直径, $d1 = D - 220$ (mm)
 F -制动时总夹紧力 (KN)
- 注: 1) 制动盘盘径 $D \geq \phi 1800$ (mm)
 2) $d2$ -允许的最大卷筒或联接鞍外径, $d2 = D - 500$ (mm)

INSTALLATION DIAGRAM

- Braking torque: $M = \mu \times d1 \times F$ (Nm)
- In it: μ -the value of friction coefficient $\mu = 0.36$
 $d1$ -disc friction diameter $d1 = D - 220$ (mm)
 F -total clamp force (KN)
- Notes: 1) D -Brake disc diameter for $D \geq \phi 1800$ (mm)
 2) $d2 = d2 = \max.$ allowable drum or hub diameter $d2 = D - 500$ (mm)



* 订货标记 ORDER MARK



SBD□-C系列 Series

* 订货示例 ORDER EXAMPLE

- SBD365-C-2200×40 I RL 表示额定夹紧力为365KN，带开闸限位开关，I型安装的C型安全制动器，制动盘直径为2200mm，盘厚为40mm。

ORDER EXAMPLE

- SBD365-C-2200×40 I RL clamping force its rated clamp is 365KN with release limit switch and C-type safety brake of I version installation. The brake disc diameter is 2200mm and the disc thickness is 40mm.

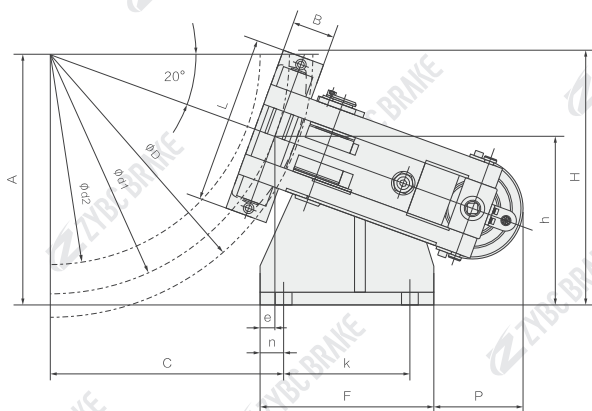
* SBD□-C系列安全制动器技术参数及安装尺寸 TECHNICAL DATA AND DIMENSIONS OF SBD□-C SERIES SAFETY BRAKES

制动器型号 Brake type	额定夹紧力 Rated clamp force (KN)	制动力 Braking force (KN)	油缸工作压力 Cylinder pressure (bar)	开闸油量 Oil volume (ml)	开闸间隙 Released clearance (mm)	安装及外形尺寸 Dimensions (mm)			重量 Weight (kg)
						A max	A1	D	
SBD250-C	250	180	80	275	1~2	595	378	≥φ1800	660
SBD365-C	365	262	80	275	1~2	790	570	≥φ1800	720
SBD425-C	425	306	95	275	1~2	790	570	≥φ1800	730

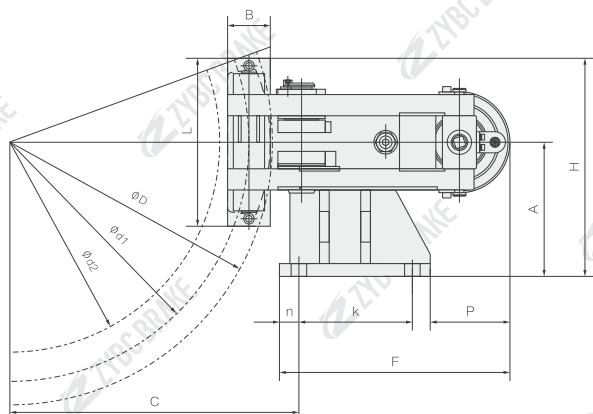
- 1) SBD□-C系列安全制动器为原型号SBB系列安全制动器。 1) The original types of SBD□-C series safety brakes are SBB.
- 2) 摩擦系数: 静态0.4, 动态0.36。 2) Friction coefficient: Static 0.4, dynamic 0.36.
- 注: 具体型号, 结构外形尺寸保留更改的权利。 Note: The size of the specific type and structure should be retained.

SBD□-D系列安全制动器 SBD□-D SERIES SAFETY BRAKES

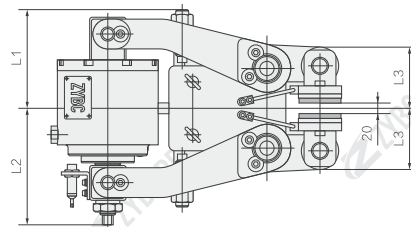
*安装及外形尺寸 OUTLINE AND INSTALLATION DIMENSION



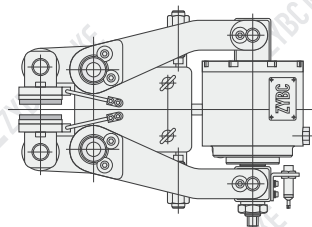
型号 Type: SBD80-D、SBD120-D、SBD240-D



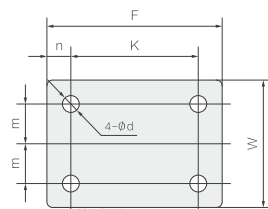
型号 Type: SBD50-D、SBD100-D



安装型式 Version: II型



安装型式 Version: I型



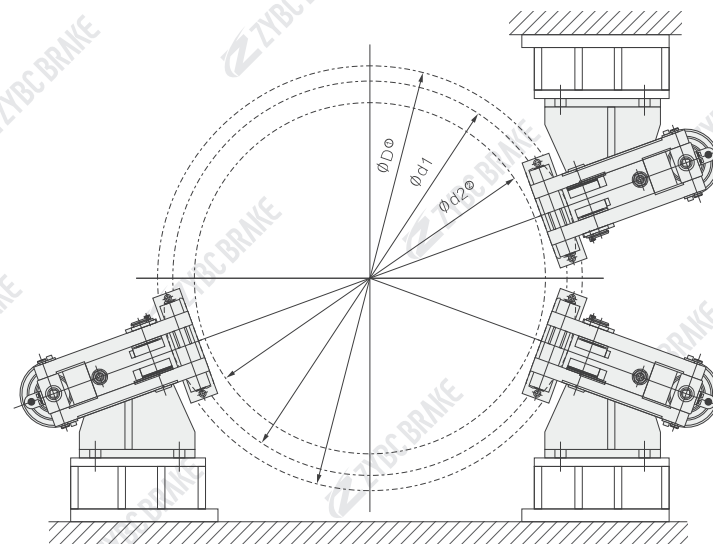
底板连接尺寸
Base plate connection dimensions

*安装示意图 INSTALLATION DIAGRAM

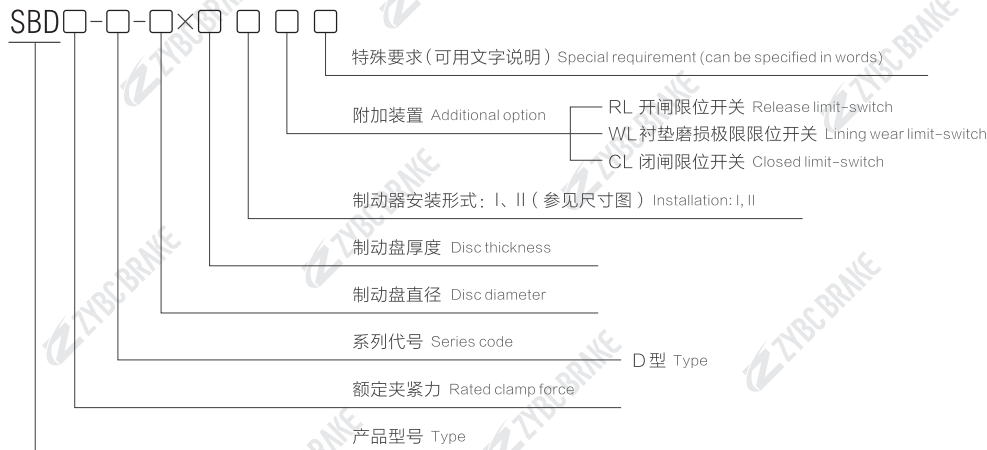
- 制动力矩: $M = \mu \times d1 \times F$ (Nm)
- 式中: μ -摩擦系数计算取值 $\mu=0.36$
 $d1$ -制动盘计算摩擦直径 (mm)
 F -制动时总夹紧力 (KN)
- 注: 1) 制动盘盘径 $D \geq \phi 600$ (mm)
 2) $d2$ -允许的最大卷筒或联接毂外径 (mm)

INSTALLATION DIAGRAM

- Braking torque: $M = \mu \times d1 \times F$ (Nm)
- In it: μ -the value of friction coefficient $\mu=0.36$
 $d1$ -disc friction diameter (mm)
 F -total clamp force (KN)
- Notes: 1) D-Brake disc diameter for $D \geq \phi 600$ (mm)
 2) $d2$ - $d2 = \max.$ allowable drum or hub diameter (mm)



* 订货标记 ORDER MARK



SBD50-D. 100-D



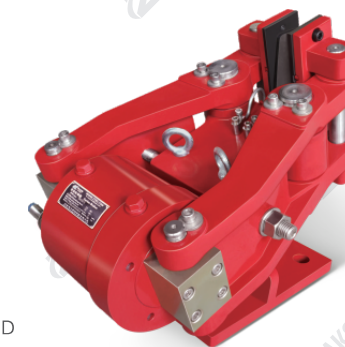
* 订货示例 ORDER EXAMPLE

- SBD120-D-900×20IRL 表示额定夹紧力为120KN，带开闸限位开关，I型安装的D型安全制动器，制动盘直径为900mm，盘厚为20mm。

ORDER EXAMPLE

- SBD120-D-900×20 IRL means its rated clamping force is 120KN with release limit switch and D-type safety brake of I version installation. The brake disc diameter is 900mm and the disc thickness is 20mm.

SBD80-D. 120-D. 240-D



* SBD□-D系列安全制动器技术参数及安装尺寸 TECHNICAL DATA AND DIMENSIONS OF SBD□-D SERIES SAFETY BRAKES

制动器型号 Brake type	额定夹紧力 Rated clamp force (kN)	制动力 Braking force (kN)	油缸工作压力 Cylinder pressure (bar)	开闸油量 Oil volume (ml)	开闸间隙 Released clearance (mm)	安装及外形尺寸 Dimensions (mm)																	重量 Weight (kg)			
						A	C	D	d2max	d1	B	L	n	k	F	P	H	m	w	L1	L2	L3		d	h	e
SBD50-D	50	36	50	150	0.75~1.5	170	D/2+35	≥φ600	φ-180	φ-90	80	278	25	130	180	140	309	80	220	190	220	115	φ26	-	-	92
SBD80-D	80	57	80	125	0.75~1.5	Sin20°(D/2-45)+320.5	Cos20°(D/2-45)+16.5	≥φ600	φ-180	φ-90	80	320	45	240	330	170	485	75	240	190	220	115	φ32	320.5	16.5	185
SBD100-D	100	72	80	150	0.75~1.25	200	D/2+55	≥φ600	φ-180	φ-90	80	320	45	240	330	195	460	75	240	190	220	115	φ32	-	-	180
SBD120-D	120	86	85	150	0.75~1.5	Sin20°(D/2-45)+320.5	Cos20°(D/2-45)+16.5	≥φ600	φ-180	φ-90	80	320	45	240	330	170	485	75	240	190	220	115	φ32	320.5	16.5	193
SBD240-D	240	172	100	170	0.75~1.5	Sin20°(D/2-45)+345	Cos20°(D/2-75)+20	≥φ600	φ-300	φ-150	140	400	60	300	420	190	560	120	360	225	255	160	φ38	345	20	310

• 注：具体型号，结构外形尺寸保留更改的权利。 Note: The size of the specific type and structure should be retained.