SB，SBD 系列安全制动器（液压失效保护盘式制动器）

SB,SBD Series Safety Brakes（Hydraulic fail-safe disc brakes）

一、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。

Hydraulic safety (emergency) brakes are high-power braking devices which can be wildly 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.

二、工作条件 Introduction:

- 环境温度 Ambient temperature:-20°C∽+ 40°C
- 相对湿度 Relative humidity:≤90%
- 可选配液压站(液压站选型详见液压站样本)

Hydraulic power unit can be selected.Type selection of hydraulic power unit see ‘Manual for hydraulic power unit.

- 有特殊要求时在订货时协商确定。

Special requirements can be discussed before production.

三、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。

Normally closed design, safe and reliable; specially-designed disc springs applied. hydraulic driving.

■ 动作灵敏，闭合（上闸）时间短。

Swift actions and short braking time.

■ 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。

Be able to optionally equip with release limit and pad wear limit switch,which can realize signal indication and interlocking protection.

■ 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。

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.

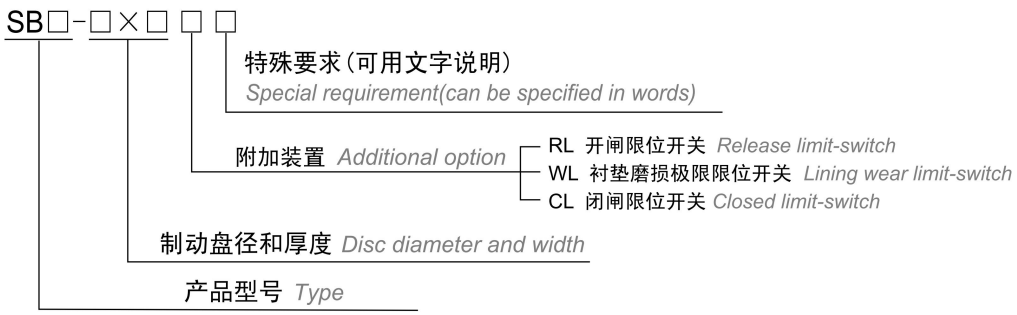
■ 合理的密封结构设计和进口铭牌密封件，效果好，寿命长。

Excellent sealing ensure the brake long service life.

■ 安装位置灵活，使用、调整、维护简单。

Installing position is flexible, operation, adjustment and maintenance are easy.

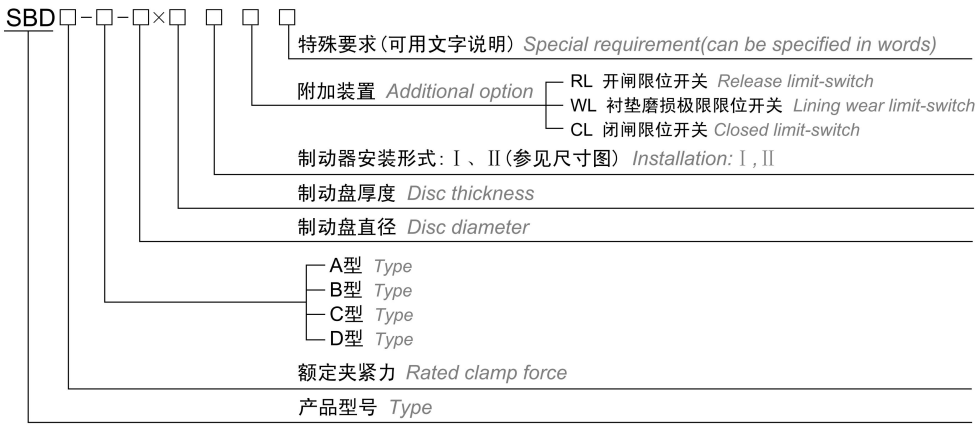
四、订货标记 Order mark



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。

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



订货示例 Order Example：

SBD250-A-1600×30 I RL 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。

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。

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。

SBD120-D-900×20 I RL 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。

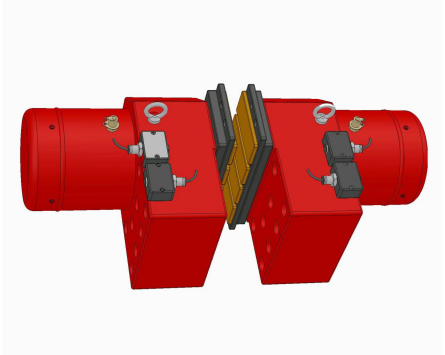
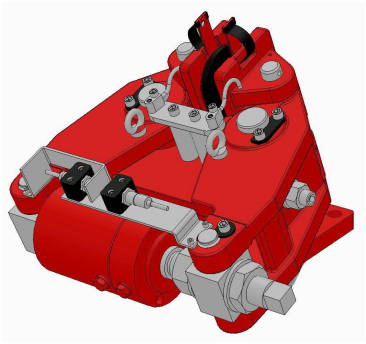
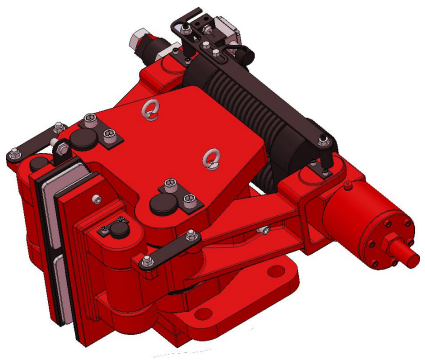
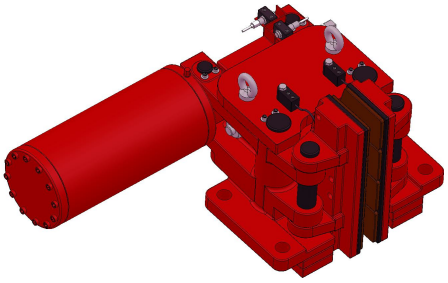
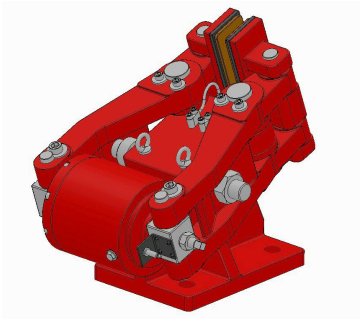
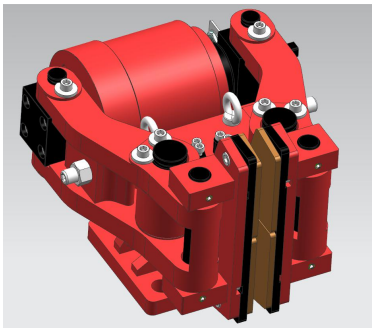
Sample:

SBD250-A-1600×30 I RL 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.

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.

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.

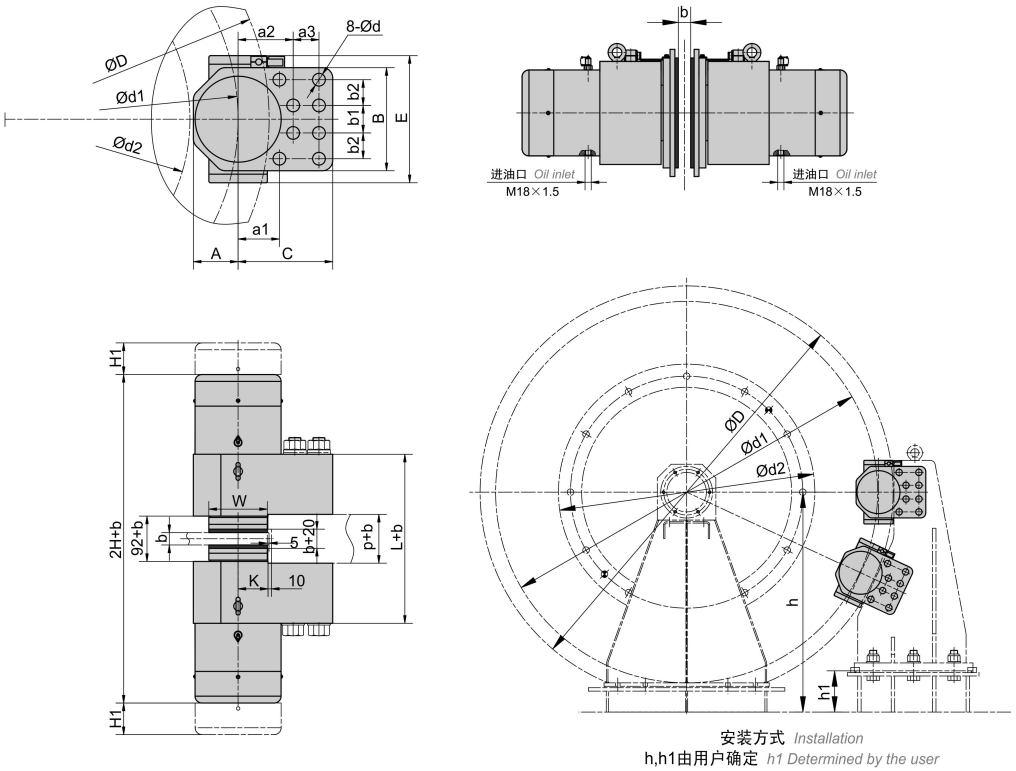
SBD120-D-900×20 I RL means its rated clamping force is 120KN with release limit switch and D-type safety brake of I version installation.The brake disc diameter is 900mm and the disc thickness is 20mm.

SB 系列 Series	SBD□-A 系列 Series	SBD□-B 系列 Series
		
SBD□-C 系列 Series	SBD□-D 系列 Series	SBD□-D 系列 Series
		

五、安装及外形尺寸 Outline and installation dimension

▲ SB 系列安全制动器安装及外形尺寸

SB 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

产品型号 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×μ×d1 Torque in Nm=F×μ×d1							

外型尺寸表 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)

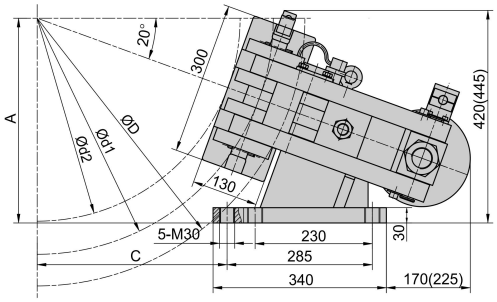
型号 Type	b			D	d1	d2 max
SB50	30	36	40	≥500	D-120	D-300
SB100	30	36	40	≥500	D-150	D-380
SB160	30	36	40	≥600	D-180	D-440
SB250	30	36	40	≥600	D-180	D-480
SB315	30	36	40	≥1200	D-280	D-600
SB400	30	36	40	≥1800	D-280	D-660
SB500	30	36	40	≥1800	D-280	D-660

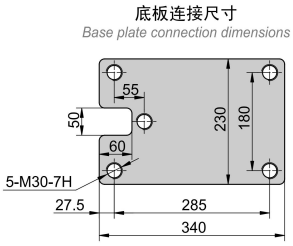
d1=理论摩擦直径 d1=the theoretical friction diameter

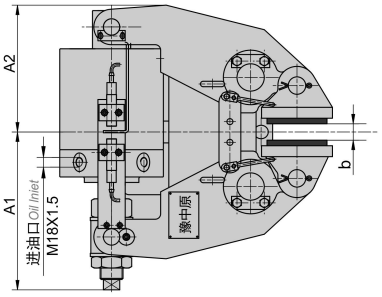
d2=允许最大的卷或联接毂外径 d2=max .allowable drum or hub diameter

D:如为其他盘径，请与我们联系 For other disc diameters please contact us

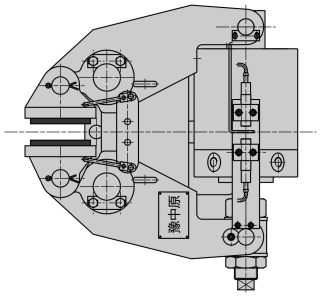
▲ SBD□-A 系列安全制动器安装及外形尺寸 SBD□-A Outline and installation dimension







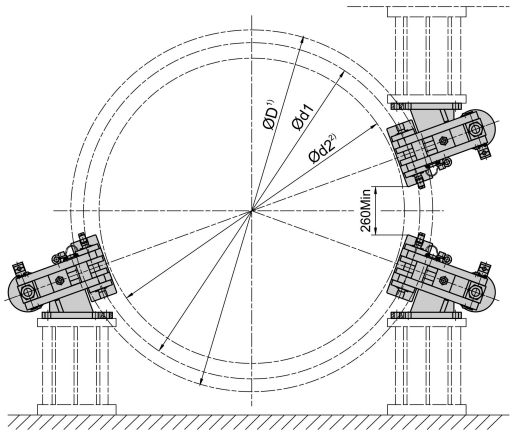
安装形式：Ⅱ型 *Version:* Ⅱ



安装形式：Ⅰ型 *Version:* Ⅰ

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=μ×d1×F(Nm)

Braking torque: M=μ×d1×F(Nm)

式中：μ—摩擦系数计算取值μ=0.36

In it:μ- the value of friction coefficient μ=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)

d1- disc friction diameter d1=D-135(mm) or D-155(mm)(the latter is specially used in SBD315-A)

F—制动时总夹紧力(KN)

F- total clamp force (KN)

注： 1)制动盘盘径用于Ø800≤ØD≤Ø1800，如需其它盘径请与我们直接联系。

Notes: 1)D-Brake disc diameter for Ø800≤ØD≤Ø1800，If you have other requirements,please contact with us.

2)d2—允许的最大卷筒或联接毂外径，d2=D-270(mm)

2)d2-d2=max .allowable drum or hub diameter d2=D-270(mm)

SBD□-A 系列安全制动器技术参数 Technical data of SBD□-A series safety brakes

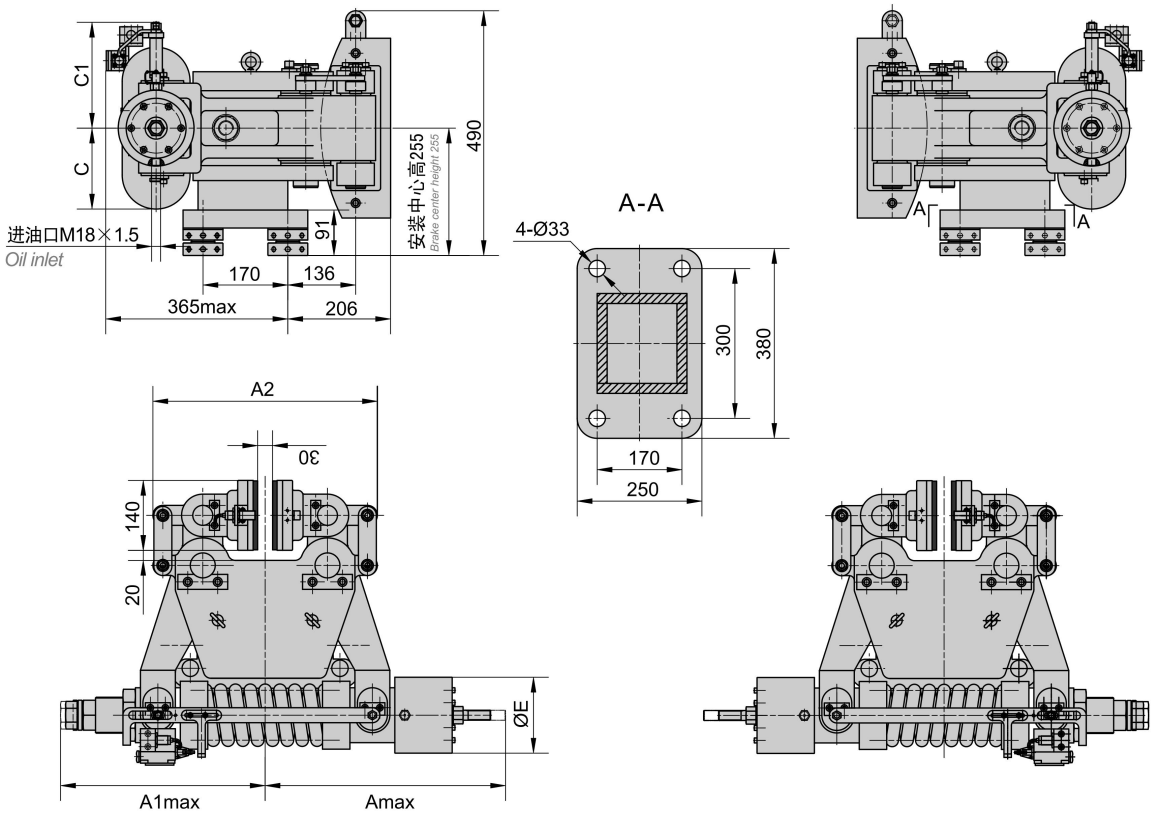
型号 Type	总夹紧力 Total clamp force(KN)	制动力 Braking force (KN)	油缸工作压力 Cylinder pressure (bar)	开闸油量 Oil volume (ml)	开闸间隙 Released clearance (mm)	重量 Weight (kg)
SBD100-A	100	72	80	90	0.75～1.5	195
SBD125-A	125	90	90	90	0.75～1.5	195
SBD160-A	160	115	110	75	0.75～1.25	195
SBD200-A	200	144	100	120	0.75～1.5	235
SBD250-A	250	180	120	100	0.75～1.25	235
SBD315-A	315	220	110	160	0.75～1.25	240

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.

尺寸表 Dimensions(mm)

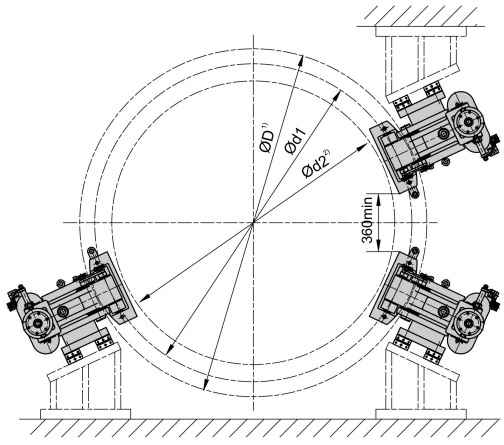
型号 Type	A	C	d1	d2 max	D	A1	A2	b
SBD100-A	0.171ØD+220	0.470ØD-127	ØD-135	ØD-270	Ø800≤ØD≤Ø1800	295	220	30 (25) (36)
SBD125-A						315	220	30 (25) (36)
SBD160-A						315	235	30 (25) (36)
SBD200-A						315	235	30 (25) (36)
SBD250-A						350	258	30 (25) (36)
SBD315-A	0.171ØD+238		ØD-155	ØD-310		355	260	30 (25)

▲ SBD□-B 系列安全制动器安装及外形尺寸 SBD□-B 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



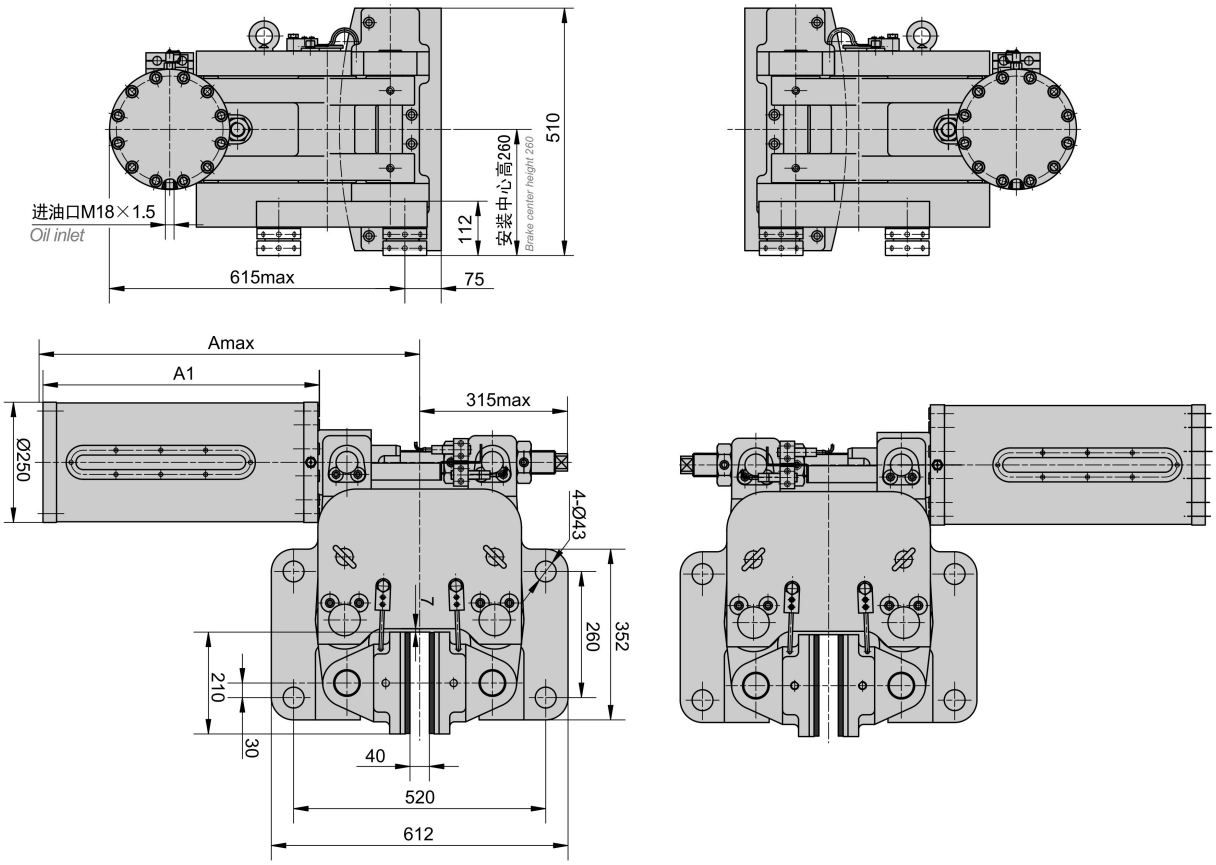
制动力矩： M=μ×d1×F(Nm)
Braking torque: M=μ×d1×F(Nm)
式中： μ—摩擦系数计算取值μ=0.36
In it:μ- the value of friction coefficient μ=0.36
d1—制动盘计算摩擦直径， d1=D-150(mm)
d1- disc friction diameter d1=D-150(mm)
F—制动时总夹紧力(KN)
F- total clamp force (KN)
注： 1)制动盘盘径用于 D≥Ø800（mm）
Notes: 1)D-Brake disc diameter for D≥Ø800（mm）.
2)d2—允许的最大卷筒或联接毂外径， d2=D-360(mm)
2)d2-d2=max .allowable drum or hub diameter d2=D-360(mm)

SBD□-B 系列安全制动器技术参数 Technical data of SBD□-B series safety brakes

型号 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)	重量 Weight (kg)	尺寸 Dimensions (mm)						
							Amax	A1max	A2	C	C1	ØE	D
SBD80-B	80	57	95	55	1～2	270	470	390	450	115	150	120	≥Ø800
SBD160-B	160	115	95	115	1～2	310	485	415	460	165	215	155	≥Ø800

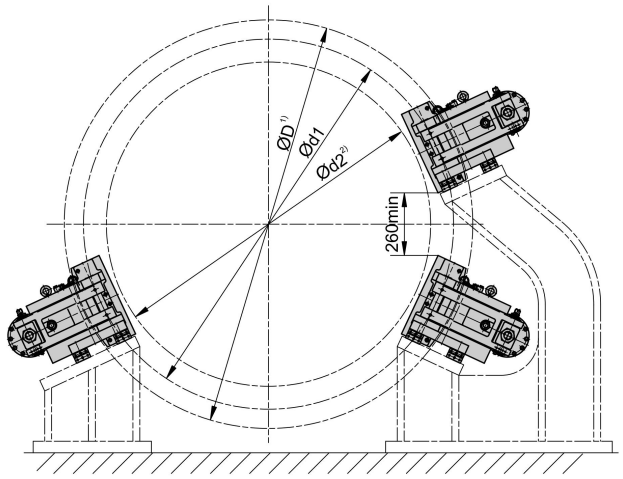
注：SBD□-B 系列安全制动器为原型号 SBB 系列安全制动器
Note:The original types of SBD□-B series safety brakes are SBB.

▲ SBD□-C 系列安全制动器安装及外形尺寸 SBD□-C 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



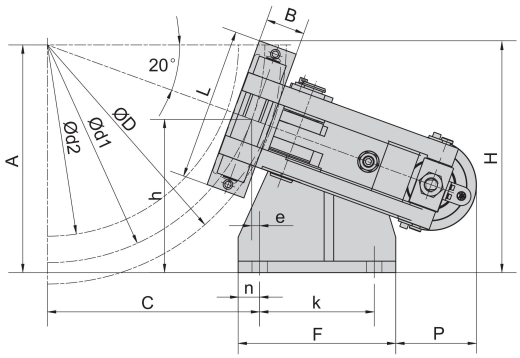
制动力矩：M=μ×d1×F(Nm)
Braking torque: M=μ×d1×F(Nm)
式中：μ—摩擦系数计算取值μ=0.36
In it:μ- the value of friction coefficient μ=0.36
d1—制动盘计算摩擦直径， d1=D-220(mm)
d1- disc friction diameter d1=D-220(mm)
F—制动时总夹紧力(KN)
F- total clamp force (KN)
注：1)制动盘盘径用于 D≥Ø1800（mm）
Notes: 1)D-Brake disc diameter for D≥Ø1800（mm）.
2)d2—允许的最大卷筒或联接毂外径， d2=D-500(mm)
2)d2-d2=max .allowable drum or hub diameter d2=D-500(mm)

SBD□-C 系列安全制动器技术参数 Technical data of SBD□-C series safety brakes

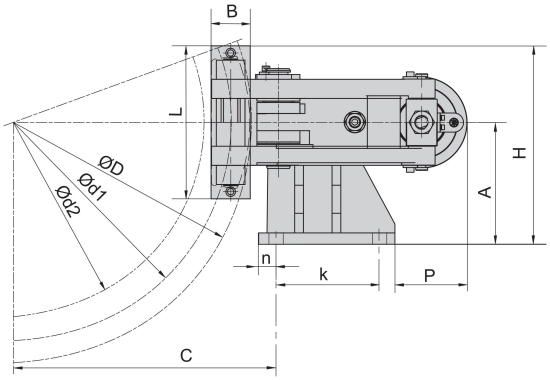
型号 Type	额定夹紧力 Rated clamp Force (KN)	制动力 Braking force (KN)	油缸工作压力 Cylinder pressure (bar)	开闸油量 Oil volume (ml)	开闸间隙 Released clearance (mm)	重量 Weight (kg)	尺寸 Dimensions（mm）		
							Amax	A1	D
SBD250-C	250	180	80	275	1～2	660	595	378	≥Ø1800
SBD365-C	365	262	80	275	1～2	720	790	570	≥Ø1800
SBD425-C	425	306	95	275	1～2	730	790	570	≥Ø1800

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

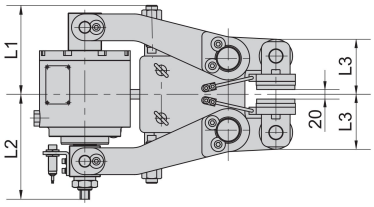
▲ SBD□-D 系列安全制动器安装及外形尺寸 SBD□-D Outline and installation dimension



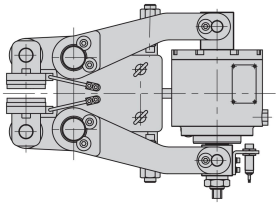
型号Type：SBD80-D、SBD120-D、SBD240-D



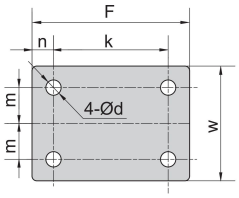
型号Type：SBD50-D、SBD100-D



安装形式：Ⅱ型 *Installation type: version Ⅱ*

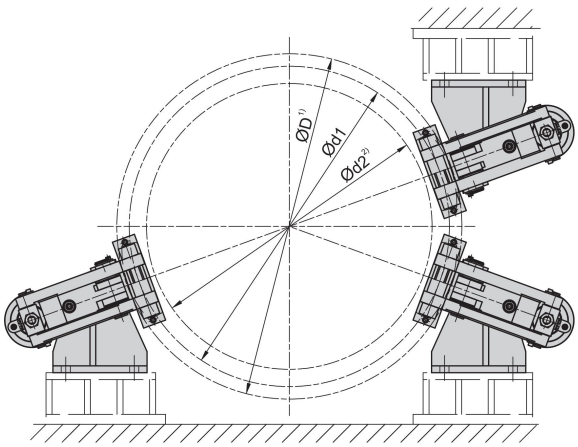


安装形式：Ⅰ型 *Installation type: version Ⅰ*



底板连接尺寸
Base plate connection dimensions

安装示意图 Installation diagram



制动力矩： M=μ×d1×F(Nm)
Braking torque: M=μ×d1×F(Nm)
式中： μ—摩擦系数计算取值μ=0.36
In it:μ- the value of friction coefficient μ=0.36
d1—制动盘计算摩擦直径(mm)
d1- disc friction diameter.(mm)
F—制动时总夹紧力(KN)
F- total clamp force (KN)
注：1)制动盘盘径用于 D≥Ø600（mm)
Notes: 1)D-Brake disc diameter for D≥Ø600（mm)
2)d2—允许的最大卷筒或联接毂外径(mm)
2) d2-d2=max .allowable drum or hub diameter.(mm)

SBD□-D 系列安全制动器技术参数 Technical data of SBD□-D series safety brakes

型号 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)	A (mm)	C (mm)	重量 Weight (kg)
SBD50-D	50	36	50	150	0.75～1.5	170	D/2+35	92
SBD80-D	80	57	80	125	0.75～1.5	Sin20°(D/2-45)+320.5	Cos20°(D/2-45)+16.5	185
SBD100-D	100	72	80	150	0.75～1.25	200	D/2+55	180
SBD120-D	120	86	85	150	0.75～1.5	Sin20°(D/2-45)+320.5	Cos20°(D/2-45)+16.5	193
SBD240-D	240	172	100	170	0.75～1.5	Sin20°(D/2-45)+345	Cos20°(D/2-75)+20	310

SBD□-D 系列安全制动器尺寸 Dimensions of SBD□-D series safety brakes（mm）

型号 Type	D	d2 max	d1	B	L	n	k	F	P	H	m	w	L1	L2	L3	d	h	e
SBD50-D	≥Ø600	Ø-180	Ø-90	80	275	25	130	180	140	308	80	220	190	220	115	Ø26	——	——
SBD80-D	≥Ø600	Ø-180	Ø-90	80	320	45	240	330	170	485	75	240	190	220	115	Ø32	320.5	16.5
SBD100-D	≥Ø600	Ø-180	Ø-90	80	320	45	240	330	195	360	75	240	190	220	115	Ø32	——	——
SBD120-D	≥Ø600	Ø-180	Ø-90	80	320	45	240	330	170	485	75	240	190	220	115	Ø32	320.5	16.5
SBD240-D	≥Ø600	Ø-300	Ø-150	140	400	60	300	420	190	560	120	360	225	255	160	Ø38	345	20