



OFFICINE MARIO DORIN SINCE 1918

DORIN[®]
INNOVATION



BX SERIES

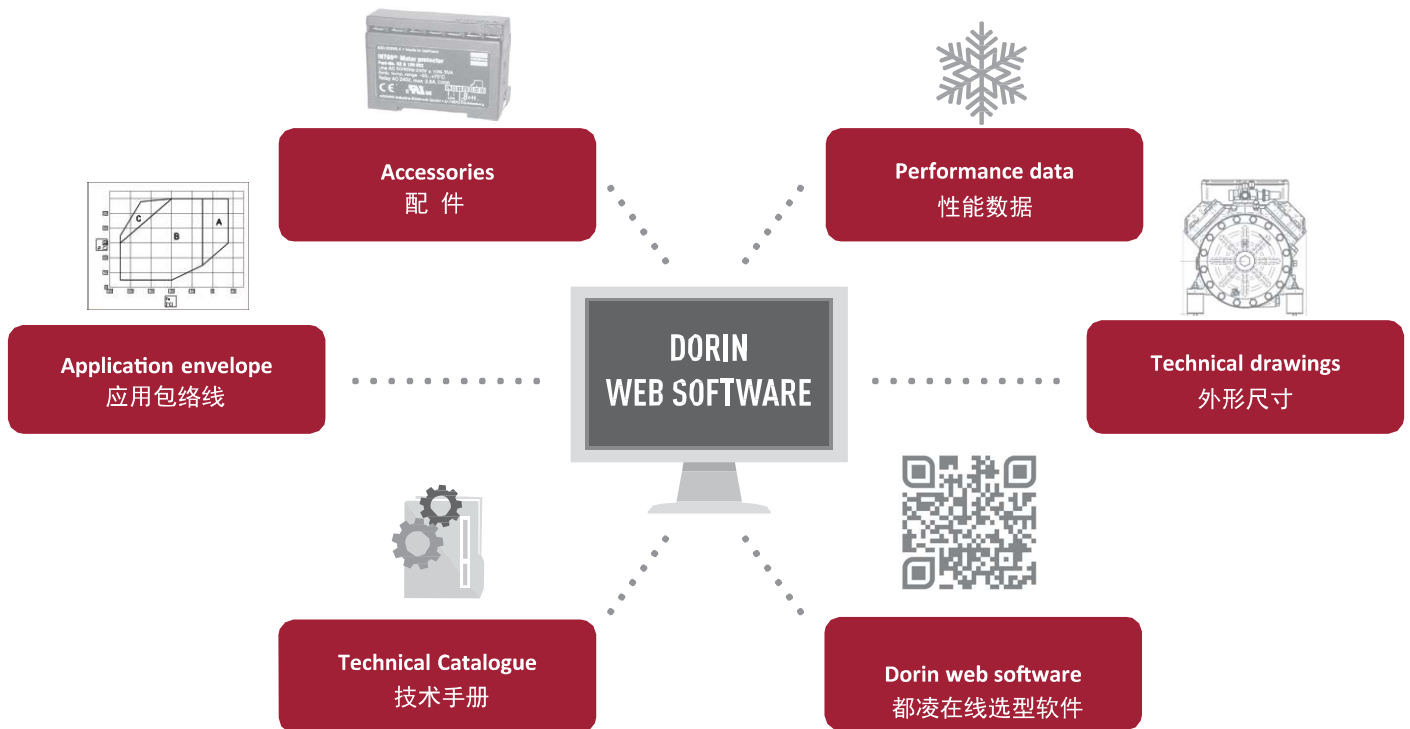
SEMI-HERMETIC MOTOR COMPRESSORS
TRANSCRITICAL CO₂ APPLICATION - 50/60 Hz

二氧化碳跨临界压缩机系列
跨临界CO₂应用50/60Hz



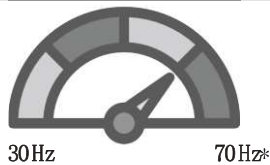
DORIN Web Software

都凌（在线）选型软件



Frequency Range

变频范围



* Maximum operating frequency to be checked in the dedicated technical bulletin

* 最大运行频率须参阅专门的技术手册

Compressor certifications

都凌压缩机认证



Factory certifications

都凌工厂认证

ISO 45001:2018

ISO 9001:2015

Compressor design pressure

压缩机设计压力

100 bar

Standstill pressure
静止压力

150 bar

Max discharge pressure
最大排气压力

BX Series Features

BX 系列产品特点

BX compressors range which represents the latest development specifically targeting those systems where **space-saving** is a must. With a height of 210 mm this new platform perfectly fits mobile HVAC applications such as the ones for **trains** and **electric buses**. Infact, compared to V-shaped compressors, **BX** models are up to **36% smaller**: this provides less constraints for roof-top applications where compressors shall be as short as possible.

The unique symmetry of the **BX** design feature **low vibration levels** since each pairs of pistons are opposed and move in a way to cancel out each other's momentum: this provides **extra-smooth** and **silent** compressor operation, which is obviously a plus in applications where passengers acoustic comfort is a priority. Also, this perfect balance leads to less load on the shaft, thus providing very **high COP levels** and **less wear** on the drive gear in the long run: this translates in **less running and maintenance costs for the end user**.

In addition, in a **BX** configuration the cylinders banks are easier to cool as they are more widely spaced from each other: this is a key feature in CO₂ applications, especially when it comes to **heat recovery** and **heat pump** operation; with a minimum **evaporating temperature of -30°C**, **BX** range makes it possible to reliably provide **comfort heating** into the bus or train coaches even during extra-low ambient temperatures; these very challenging operating conditions are typically leading to **very large pressure ratios and pressure differences** across the piston, this leading to very high end-of- compression temperatures; however, this hurdle is safely be tolerated thanks to the implementation of a dedicated **external discharge manifold** which help in mitigating discharge temperature and heat transfer to the lubricant, this resulting in **smooth drive gear lubrication**.

This lightweight configuration obviously represents an additional advantage for transport applications, especially in case of a **roof-top** installation. For both housing, **BX** assure very high design pressures, 100 bar in the LP side and 150 bar in the HP side.

All the **CO₂ BX** models are available in Semi-Hermetic execution: this contribute to a significant **reduction in maintenance costs for the end user** since compressors are accessible and easy to service, making it possible to reach **performance** unachievable with a hermetic compressor execution.

BX系列压缩机代表了最新的技术发展，专为必须节省空间的系统设计。该压缩机高度仅为 210 毫米，完美适配移动 HVAC 应用，例如火车和电动公交车的空调系统。事实上，与 V字形的压缩机相比，BX 型号总体积减少了高达36%：此设计减少了车顶安装的限制，因为此类应用中的压缩机高度需要尽可能降低。

BX 设计的独特对称性使其振动极低，因为每对活塞均呈对置布局，运动方向相反，从而相互抵消动量：这带来了超平稳且静音的压缩机运行，显然在乘客声学舒适度优先的设计中是一大优势。此外，这种完美的平衡减少了对轴的负载，从而在长期运行中提供非常高的能效比（COP），并降低磨损：这意味着终端用户的运行和维护成本更低。

另外，在 BX 配置中，活塞组更容易冷却，因为它们彼此间距更宽：这是 CO₂应用中的一个关键特性，特别是在热回收和热泵运行方面；BX 系列的最低蒸发温度可达 -30° C，即使在极低的环境温度下，也能可靠地为公交车或火车车厢提供舒适供暖；这些极具挑战性的运行条件通常会导致非常高的压力比和活塞两侧的压力差，从而导致排气温度极高；然而，得益于专用外置排气歧管的设计，这一难题得以安全克服，该外置排气歧管有助于缓解排气温度并阻隔向冷冻油的热量传递，从而实现机械部件的有效润滑。

这种轻量化配置显然为交通应用带来了额外优势，尤其是在车顶安装的情况下。对于两种外壳类型，BX 均确保极高的设计压力：低压侧为 100 bar，高压侧为 150 bar。

所有 CO₂BX 型号均采用半封闭式结构：这有助于显著降低终端用户的维护成本，因为压缩机易于接触和服务，从而能够实现全封闭式压缩机无法达到的性能。

BX SERIES Features

BX 系列产品特点



Silent operations and low vibrations

运行安静流畅，振动水平低



All models VFD compatible

所有型号可变频运行

Bore / Stroke values and generous motor sizings allow wide frequency ranges
电机、缸径、行程的优化配比使之可以实现宽频运行



Highest levels of efficiency

优异的运行效率

Using latest coating technologies for reducing frictions and improving lubrication
采用最新的涂层技术来减少摩擦和改善润滑



2 years standard warranty

两年标准质保



All compressors developed for transcritical CO₂

所有压缩机适用于跨临界CO₂应用



Salt spray resistance test, certified for 1000 hours (NSS test in accordance with UNI EN ISO 4628, parts 2,3,8- Assesment method : UNI EN ISO 9227

盐雾耐受性测试，已通过1000小时认证（根据UNI EN ISO 4628第2、3、8部分的评估方法进行NSS测试）：
UNI EN ISO 9227



Compact design and reduced gross weight

轻量化和紧凑地设计

Optimized displacement values for crankcase size
根据曲轴箱大小对应的最优排量

Model name for BX range

BX 型号命名

BX	75	4.7	H
SERIES 系列	HP (@ 50 Hz) * 10	DISPLACEMENT VOLUME 排量	H HIGH-MEDIUM EVAPORATING TEMPERATURE 高中蒸发温度

Applications BX SERIES

BX系列的应用



Industrial Refrigeration
工业制冷



Railway HVAC
轨道交通



Logistic Warehouse
物流仓储



Heat Pumps
热泵应用



Commercial Refrigeration
商超制冷



Bus A/C
公交空调



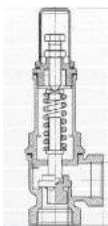
Refrigerated Transport
冷链运输



Stationary HVAC
暖通空调

Standard And Optional Accessories

标配件和选配件



<p>● STANDARD 标配 ○ OPTIONAL 选配</p>	<p>BX</p>
<p>Motor protection (MT) 电机保护</p> <p>Compressors are equipped with a PTC probe installed on every motor winding combined with electronic protection module (REL)</p> <p>压缩机的每个电机绕组都装有一个PTC探头，与电机保护模块合并。</p>	<p>●</p>
<p>Motor protection electronic module (REL) 电子保护模块</p> <p>Keeping under constant control winding temperature and discharge temperature) (BT007)</p> <p>确保电机绕组温度和压缩机排气温度在允许温度内。 (参考技术手册BT007)</p>	<p>●</p>
<p>Crankcase heater (CH) 曲轴箱加热器</p> <p>The heater is 100 W for BX serie BX系列使用100W曲轴箱加热器</p>	<p>○</p>
<p>Self-regulating crankcase heater (TCH) 自适应曲轴箱加热器</p> <p>Increasing the energy efficiency and reducing the warm-up time. The thermal regulated crankcase heater reduces the output power once the set temperature is reached. Depending on the working conditions there is up to 30% energy saving compared to the standard heater (BT001)</p> <p>与传统加热器相比，自适应曲轴箱加热器可提高能效并减少预热时间。一旦达到设定温度，自适应曲轴箱加热器会降低输出功率。节能情况视不同工况而变，与传统的曲轴箱加热器相比，最多可节省30%的耗能。(参见技术手册BT001)</p>	<p>○</p>
<p>Oil charge 冷冻油充注</p> <p>All compressors are charged in the factory with POE or PAG oil before the mechanical and electrical running tests</p> <p>标配POE或PAG冷冻油</p>	<p>●</p>
<p>LP and HP pressure relief valve (LPSV-HPSV) 高压和低压安全阀</p>	<p>●</p>

Oil Charge / Service Valves / Net Weight

油量/阀门/净重

RANGE 系列	MODEL 型号	CYLINDERS 缸数	OIL CHARGE 油量	SUCTION 吸气阀		DISCHARGE 排气阀		NET WEIGHT 净重
		[-]	[LITERS]	Socket welding [mm]	Butt welding [mm]	Socket welding [mm]	Butt welding (mm)	
BX	BX 75-4,7H	4	1,3	22	28	16	22	104
	BX 90-6,4H	4	1,3	22	28	16	22	106
	BX 90-7,3H	4	1,3	22	28	16	22	106
	BX 120-9,2H	4	1,3	22	28	16	22	107

Electric Motor FLA (Full Load Ampere)

最大工作电流 (满载电流)

RANGE 系列	MODEL 型号	DISPLACEMENT 排量		MAX OPERATING CURRENT 最大工作电流 V / ph / Hz [A]												MAX ABSORBED POWER 最大输入功率			
		50 Hz [m3/h]	60 Hz [m3/h]	220-240 / 1 / 50	208-230 / 1 / 60	220-240 / 3 / 50	265-290 / 3 / 60	380-420 / 3 / 50 D	440-480 / 3 / 60 Y	208-230 / 3 / 60 D	360-400 / 3 / 60 Y	200 / 3 / 50-60 D	380-420 / 3 / 50 PWS	440-480 / 3 / 60 PWS	200-240 / 3 / 50 PWS	208-230 / 3 / 60 PWS	360-400 / 3 / 60 PWS	475-525 / 3 / 50	550-600 / 3 / 60
BX	BX 75-4,7H	4,67	5,6	-	-	34,0	19,5	41,0	23,5	-	19,5	-	-	-	-	-	15,6	11,4	13,7
	BX 90-6,4H	6,4	7,68	-	-	40,0	23,0	48,0	27,5	-	23,0	-	-	-	-	-	18,4	13,8	16,6
	BX 90-7,3H	7,28	8,74	-	-	40,0	23,0	48,0	27,5	-	23,0	-	-	-	-	-	18,4	13,8	16,6
	BX 120-9,2H	9,21	11,05	-	-	41,5	24,0	50,0	28,8	-	24,0	-	-	-	-	-	19,2	14,5	17,4

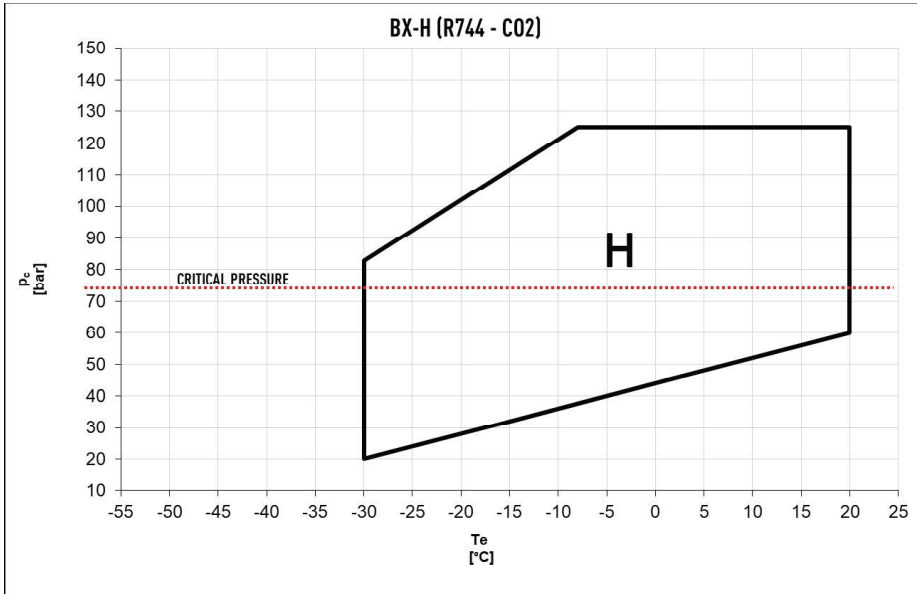
Electric Motor LRA (Locked Rotor Ampere)

锁定转子电流 (堵转电流)

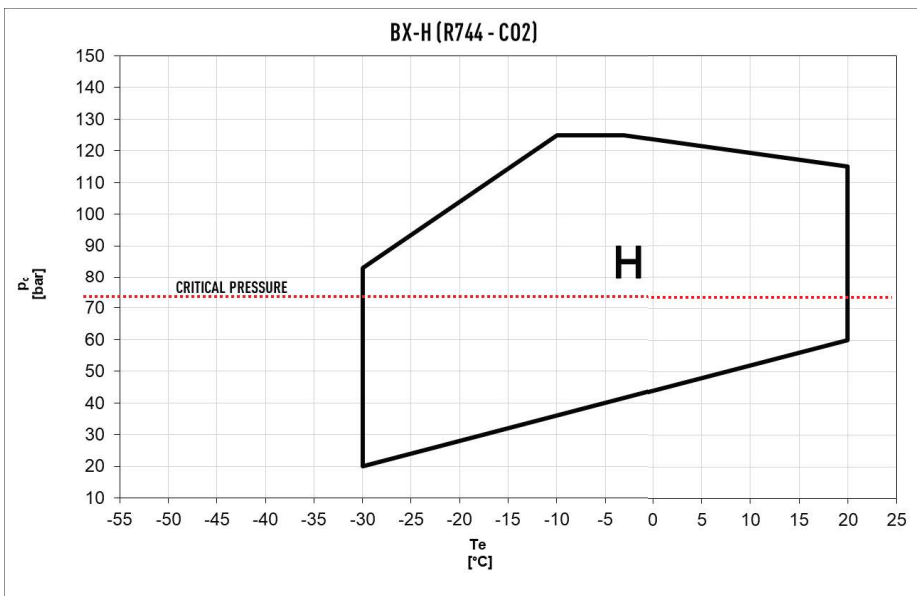
RANGE 系列	MODEL 型号	DISPLACEMENT 排量		LOCKED ROTOR CURRENT 锁定转子电流 V / ph / Hz [A]														
		50 Hz [m3/h]	60 Hz [m3/h]	220-240 / 1 / 50	208-230 / 1 / 60	220-240 / 3 / 50	265-290 / 3 / 60	380-420 / 3 / 50 D	440-480 / 3 / 60 Y	208-230 / 3 / 60 D	360-400 / 3 / 60 Y	200 / 3 / 50-60 D	380-420 / 3 / 50 PWS*	440-480 / 3 / 60 PWS*	200-240 / 3 / 50 PWS*	208-230 / 3 / 60 PWS*	360-400 / 3 / 60 PWS*	475-525 / 3 / 50
BX	BX 75-4,7H	4,67	5,6	-	-	149,0	86,0	179,0	103,0	-	86,0	-	-	-	-	-	-	69,0
	BX 90-6,4H	6,4	7,68	-	-	159,0	92,0	191,0	110,0	-	92,0	-	-	-	-	-	-	74,0
	BX 90-7,3H	7,28	8,74	-	-	159,0	92,0	191,0	110,0	-	92,0	-	-	-	-	-	-	74,0
	BX 120-9,2H	9,21	11,05	-	-	189,0	109,0	226,0	190,0	-	109,0	-	-	-	-	-	-	87,0

Application Envelope

应用包络线



BX 75-4.7H
BX 90-6.4H
BX 90-7.3H



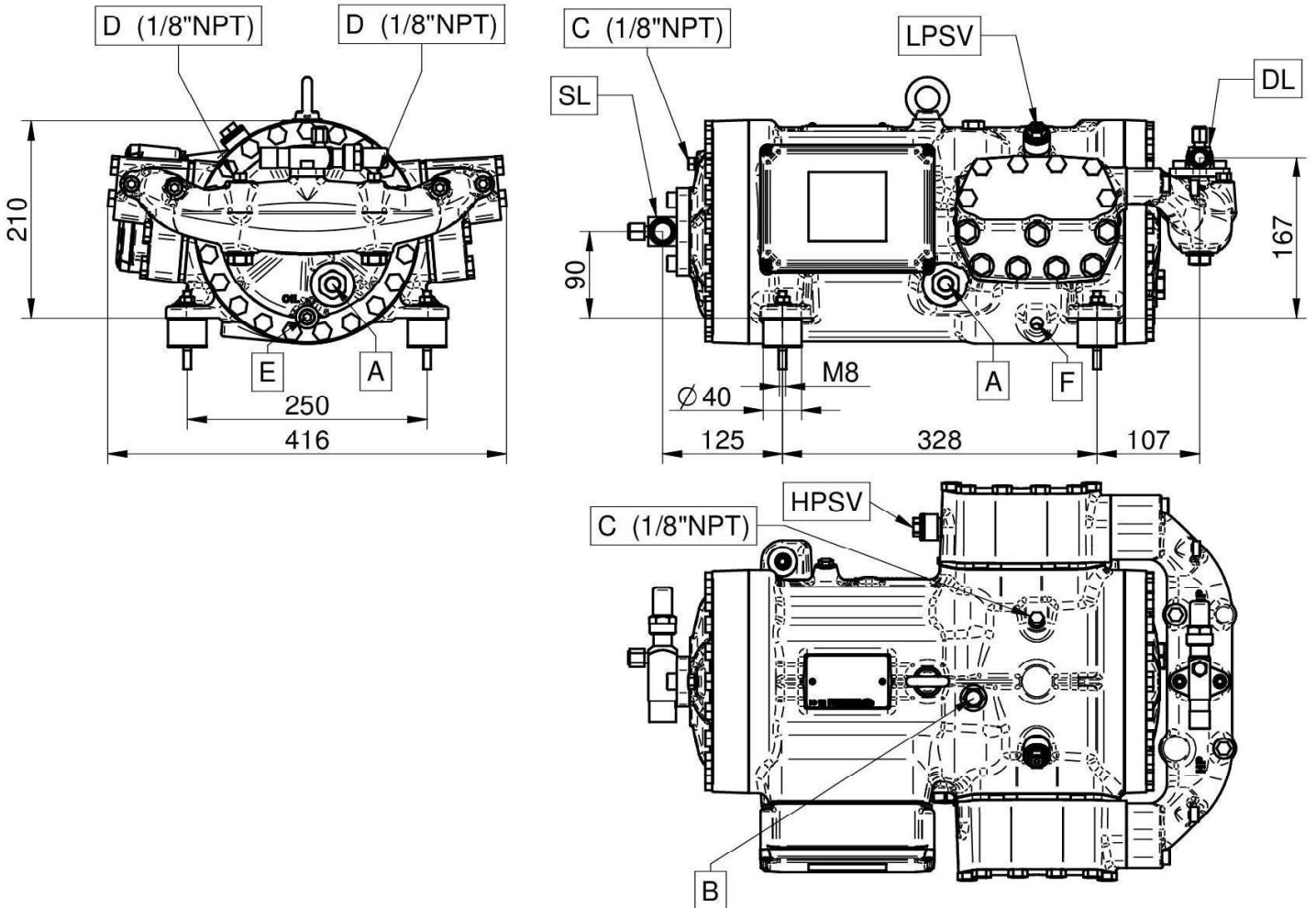
BX 120-9.2H

Compressors application envelopes valid for superheat values lower than 10K / For evaporating temperatures > 10°C use PAG68 oil
 应用包络线内过热度低于10K

Technical Drawings

外形尺寸

BX



- A-Oil sight - 油视镜
- B-Oil charge plug - 注油塞
- C-Low pressure tap - 低压旋塞
- D-High pressure tap - 高压旋塞
- E-Oil drain plug/Oil filter - 排油塞

- F-Crankcase heater - 曲轴箱加热器
- DL-Discharge service valve - 排气阀
- SL-Suction service valve - 吸气阀
- LPSV-Low pressure safety valve - 低压安全阀
- HPSV-High pressure safety valve - 高压安全阀



DORIN WEB SOFTWARE

Open the camera app on your device and point it at the QR code to scan it. Make sure that all the four corners of the QR code are in view. A pop-up notification will appear on your screen, tap the notifications to launch the code.

Dorin都凌在线选型软件
扫描二维码，即可在线选型。



OFFICINE MARIO DORIN S.p.A.
Via Aretina 388, 50061 Compiobbi - Florence, Italy Tel.
+39 055 62321 1 - Fax +39 055 62321 380

dorin@dorin.com
www.dorin.com

全国统一服务电话：400-021-9890