

Copeland™ Stream Compressors for R744 Refrigeration



Designed for durability and
best-in-class performance in
CO₂-transcritical applications

COPELAND™


EMERSON™

Designed for durability and best-in-class performance in CO₂-transcritical applications

Stream series of 4 cylinder CO₂ compressors is the ideal solution for R744 medium temperature cascade and booster systems. It is characterized by a design pressure of 135 bar. Refrigerant flow and heat transfer have been optimized for best performance. All compressors are equipped with CoreSense™ technology and offer the possibility to diagnose system-related problems faster or even before they occur.

Stream Series is the ideal choice for medium temperature transcritical applications as well as for low temperature cascade and booster applications requiring high standstill pressures up to 90 bar suction. The use of transcritical compressors in medium, transcritical side as well as on the low temperature, subcritical side ensures that in case of power outage, the refrigeration system features full resilience and no operation disruption.

Advanced features

- Stepless capacity modulation via inverter from 25 to 70 Hz
- Emerson Next Generation CoreSense Technology

Features and benefits

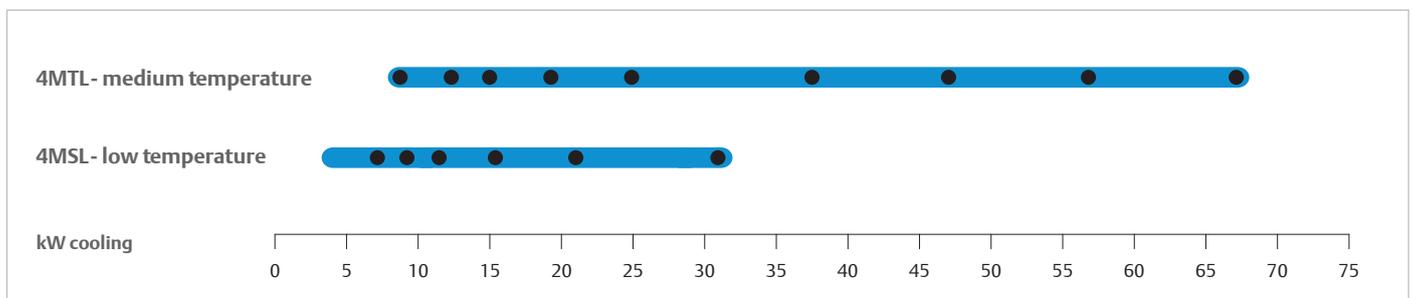
Stream provides for flexibility in pack design and operation:

- Compact dimensions
- Integrated high pressure relief valve
- Discharge temperature protection
- Service valve 360° rotation for ease of piping design
- 2 sight glasses for mounting of oil management control and visual inspection
- One additional sight glass for oil visual inspection at run time
- One oil port for oil equalization in parallel system
- Oil splasher system ensuring lubrication at constant and variable speed

Designed for durability and performance in R744 applications:

- Low sound, low vibration and large discharge chamber to eliminate pulsation
- High design pressures of 135 bar (high side) and 90 bar (low side)
- Burst pressures in excess of safety factor 3
- Cylinder head and discharge plenum design minimizing heat transfer to suction side
- Individual compressor power consumption monitoring

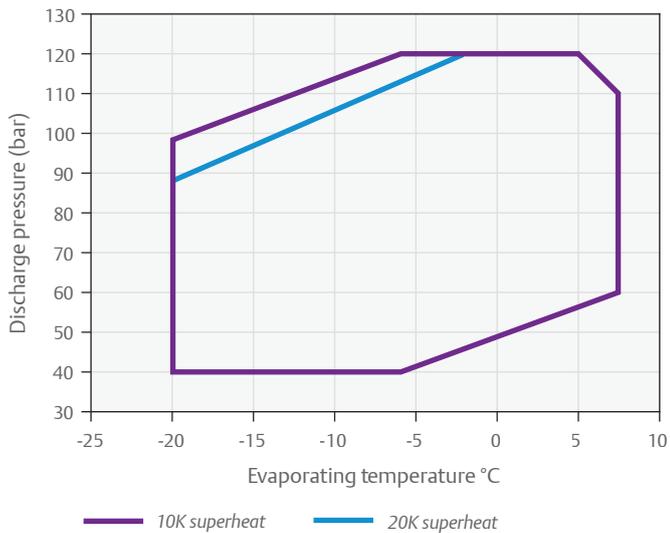
Stream compressor line-up



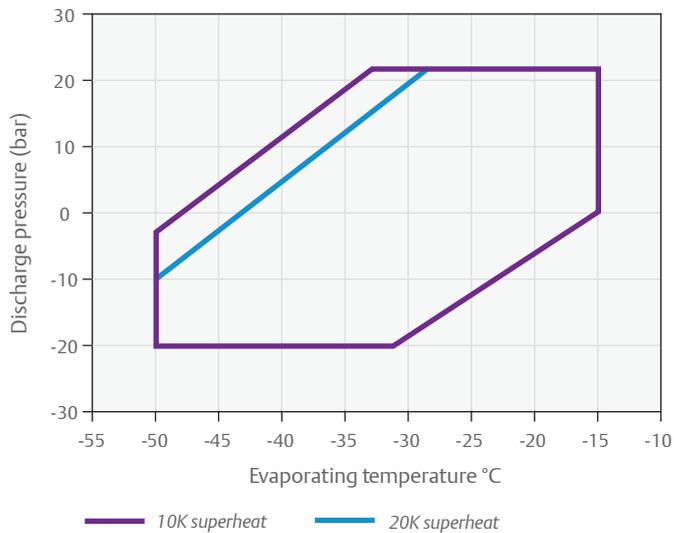
Conditions for 4MTL: EN12900 R744: Evaporating -10°C, Gas cooler exit: 35°C/ 90 bar, Superheat: 10K for medium temperature
Conditions for 4MSL: EN12900 R744: Evaporating -35°C, Condensing -5°C, Superheat 10K, Subcooling 0K for low temperature

Operating envelope

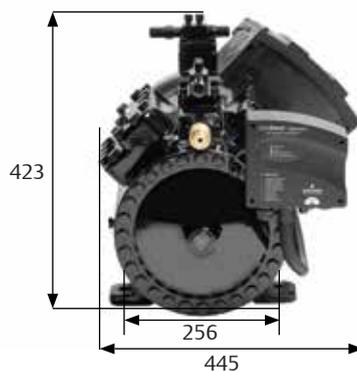
4MTL transcritical applications



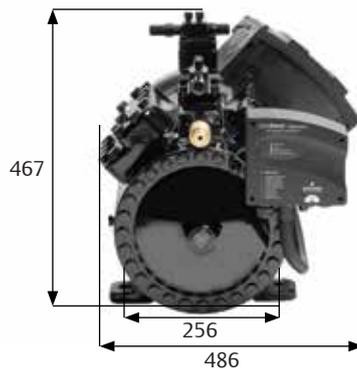
4MSL subcritical applications



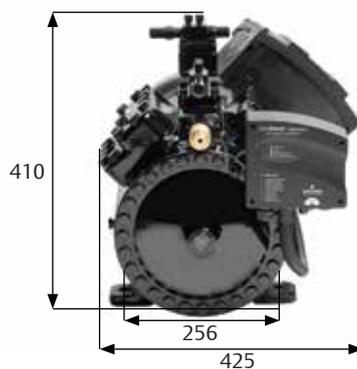
Dimensions - 4MTL-05X...30X



Dimensions - 4MTL-35X/40X/50X



Dimensions - 4MSL-03...15X





Technical overview

R744	Nominal horsepower (hp)	Displacement (m ³ /h)	Capacity (kW)	COP	Oil quantity (l)	Net weight (kg)	Standstill pressure (high/low side) bar
4MTL-05X	5.0	4.6	8.8	1.62	1.7	140	135/90
4MTL-07X	6.5	6.2	11.8	1.66	1.7	140	
4MTL-09X	9.0	7.4	14.6	1.67	1.7	140	
4MTL-12X	12.0	9.5	19.2	1.70	1.7	170	
4MTL-15X	15.0	12.5	25.2	1.75	1.7	170	
4MTL-30X	30.0	17.9	37.0	1.80	1.7	175	
4MTL-35X	35.0	22.7	45.3	1.79	2.5	258	
4MTL-40X	40.0	26.6	55.9	1.84	2.5	264	
4MTL-50X	50.0	32.0	67.8	1.81	2.5	269	

Conditions: EN12900 R744: Evaporating -10°C, Gas cooler exit:35°C/90 bar, Superheat: 10K
 ** 3 Ph: 380-420V/ 50Hz

R744	Nominal horsepower (hp)	Displacement (m ³ /h)	Capacity (kW)	COP	Oil quantity (l)	Net weight (kg)	Standstill pressure (high/low side) bar
4MSL-03X	3.0	4.6	7.1	3.33	1.8	140	135/90
4MSL-04X	4.0	6.2	9.7	3.51	1.8	140	
4MSL-06X	5.0	7.4	12.0	3.68	1.8	140	
4MSL-08X	8.0	9.5	15.9	3.60	1.8	170	
4MSL-12X	12.0	12.5	21.0	3.72	1.8	170	
4MSL-15X	15.0	17.9	31.0	3.84	1.8	170	

EN12900 R744 - LT: Evaporating -35°C, Condensing -5°C, Suction Superheat 10K, Subcooling 0K
 ** 3 Ph: 380-420V/ 50Hz

For more details, see climate.emerson.com/en-gb

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