DEN Screw Compressor Units

Reliability and efficiency

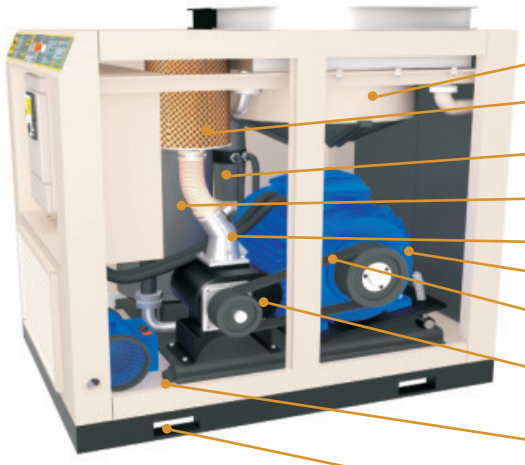
«Chelyabinsk Compressor Plant» CJSC produces electric driven screw compressor units type DEN with an efficiency 10,6 - 1942,3 CFM (0,3 - 55 m^3/min) and 101,5 - 188,5 psig (7-13 bar) working pressure. They operate at a wide range of climatic conditions: from +33,8 °F up to +95 °F (from +1°C up to +35°C)(standard version), from +33,8 °F up to +113 °F (from +1°C up to +45°C), high humidity («Tropic» special version), from -31 °F up to +95 °F (from -35°C up to +35°C) (special northern version).

DEN compressor units are a prefabricated, ready for operation package installed on a common frame without a special foundation, equipped with an acoustic enclosure and an automatic control system. It is built around a crew compressor with a service life of 40000 operating hours. The core of the automatic control system is a CMC Air Master S1 microprocessor control unit. For a remote control of a compressor group a Metacentre system is applied (option). The DEN compressor units are produced with an air (standard) or liquid cooling system (DEN «Rosa»).

Upon a special request the DEN compressor units can be produced with a 362,6 psig (25 bar) working pressure.

Standard supply





DEN compressor units warranty period is 3 years

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DEN Screw Compressor Units

New!



DEN-4-7,5 «Econom»

Economy-size compressor unit with a small efficiency. The unit is installed on a frame without a jacket on the basis of a compact module VMC, Italy, which includes a screw compressor, inlet and air purification system from oil and a control system. The compact unit allows air flows' optimization and the reliability increase of the whole unit by means of the components quantity reduce.



DEN-5.5Sh - DEN-11Sh «Breeze»

The best alternative for the piston «garage» compressors. Round-the-clock operation in the most extreme conditions is possible. High and stable compressed air quality is provided. The control system is fully automatic. There are three versions possible: on a frame, on a receiver, on a receiver with a dryer. The unit can be optionally supplied with a group of filters, purifying from oil and dust. The highest efficiency at low cost.



DEN-15Sh - DEN-75Sh

Ideal solution for a small-scale production or a workshop (area, customer) using a decentralized compressed air supply system. The maintenance is rather simple thanks to an optimal design and easy access to all the main assemblies.



DEN-45ShM «OilField»

Special version for an oil-production enterprise. Maximal reliability in the most extreme conditions.



DEN-90Sh - DEN-110Sh

Industrial compressors that satisfy the highest requirements - power efficiency, reliability, long operating life. The units are specially designed for a high load operation in a separate workshop of middle and large-scale productions. No special foundation neither permanent presence of working staff is needed. The low noise level allows to install near the working places.



DEN-132ShM - DEN-250ShM

A perfect combine of technologies suitable for a large consumers supply as well as for a centralized compressor stations construction. The ready to operate units are supplied with a smooth start device, limiting the start points and reducing mechanical load of all the compressor units' components at the start and enlarge the maximal quantity of starts per hour. As a result - the operation life is also increasing.



DEN-315ShM - 400ShM

Nowadays this is the most high-performance and power efficient compressor unit produced by CHKZ, which is considered to be the combination of the highest skills in design and production. A module design, consisting of compressing, cooling and control modules enables to meet the highest clients requirements and specific while reconstructing compressor stations or building new ones and to reduce the cooling system pipelines length.

DEN compressor units are manufactured with a belt or direct drive (with a flexible coupling), and with an air or liquid cooling system

CHELYABINSK
CHKZ COMPRESSOR PLANT

DEN Screw Compressor Units

Technical characteristics

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power HP (kW)	Dimensions, LxWxH in (mm)	Weight lb (kg)
DEN-4	20,48/15,89/11,30 (0,58/0,45/0,32)	101,5/145/188,5 (7/10/13)	5,4 (4)	22.8x28.3x25.6 (580x720x650)	330.7(150)
DEN-5,5	26,49/21,19/16,60 (0,75/0,6/0,47)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	22.8x28.3x25.6 (580x720x650)	330.7(150)
DEN-7,5	37,08/28,25/22,95 (1,05/0,8/0,65)	101,5/145/188,5 (7/10/13)	10,1 (5,5)	22.8x28.3x26.2 (580x720x665)	374.8(170)
DEN-5,5Sh	28,25/22,25/19,07 (0,8/0,63/0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	37.0x23.6x29.5 (940x600x750)	440.9(200)
DEN-5,5Sh-R (250 l)	28,25/22,25/19,07 (0,8/0,63/0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	53.9x25.0x55.5 (1370x635x1410)	661.4(300)
DEN-5,5Sh-R (500 l)	28,25/22,25/19,07 (0,8/0,63/0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	70.7x25.0x55.5 (1796x635x1410)	881.8(400)
DEN-5,5Sh-OR (500 l)	28,25/22,25/19,07 (0,8/0,63/0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	70.7x25.0x55.5 (1796x635x1410)	925.9(420)
DEN-7,5Sh	40,96/28,96/25,07 (1,16/0,82/0,71)	101,5/145/188,5 (7/10/13)	10,1 (7,5)	37.0x23.6x29.5 (940x600x750)	551.2(250)
DEN-7,5Sh-R (500 l)	40,96/28,96/25,07 (1,16/0,82/0,71)	101,5/145/188,5 (7/10/13)	10,1 (7,5)	70.7x25.0x55.5 (1796x635x1410)	992.1(450)
DEN-7,5Sh-OR (500 l)	40,96/28,96/25,07 (1,16/0,82/0,71)	101,5/145/188,5 (7/10/13)	10,1 (7,5)	70.7x25.0x55.5 (1796x635x1410)	1047.2(475)
DEN-11Sh	63,57/56,50/49,44 (1,85/1,6/1,4)	101,5/145/188,5 (7/10/13)	14,8 (11)	37.0x23.6x29.5 (940x600x750)	595.2(270)
DEN-11Sh-R (500 l)	63,57/56,50/49,44 (1,85/1,6/1,4)	101,5/145/188,5 (7/10/13)	14,8 (11)	70.7x25.0x55.5 (1796x635x1410)	1036.2(470)
DEN-11Sh-OR (500 l)	63,57/56,50/49,44 (1,85/1,6/1,4)	101,5/145/188,5 (7/10/13)	14,8 (11)	70.7x25.0x55.5 (1796x635x1410)	1102.3(500)
DEN-15Sh	95,35/84,76/74,16 (2,7/2,4/2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	47.2x31.5x39.4 (1200x800x1000)	1113.3(505)
DEN-15Sh-R (500 l)	95,35/84,76/74,16 (2,7/2,4/2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	70.9x31.5x67.3 (1800x800x1710)	1565.3(710)
DEN-15Sh-R (900 l)	95,35/84,76/74,16 (2,7/2,4/2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	80.7x31.5x74.4 (2050x800x1890)	1807.8(820)
DEN-15Sh-OR (500 l)	95,35/84,76/74,16 (2,7/2,4/2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	72.8x31.5x67.3 (1850x800x1710)	1653.5(750)
DEN-15Sh-OR (900 l)	95,35/84,76/74,16 (2,7/2,4/2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	83.9x31.5x74.4 (2130x800x1890)	1918.0(870)
DEN-18Sh	109,48/95,35/77,69 (3,1/2,7/2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18)	47.2x31.5x39.4 (1200x800x1000)	1135.4(515)
DEN-18Sh-R (500 l)	109,48/95,35/77,69 (3,1/2,7/2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18)	70.9x31.5x67.3 (1800x800x1710)	1587.3(720)
DEN-18Sh-OR (500 l)	109,48/95,35/77,69 (3,1/2,7/2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18)	80.7x31.5x74.4 (2050x800x1890)	1829.8(830)
DEN-18Sh-OR (500 l)	109,48/95,35/77,69 (3,1/2,7/2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18)	72.8x31.5x67.3 (1850x800x1710)	1719.6(780)
DEN-18Sh-OR (900 l)	109,48/95,35/77,69 (3,1/2,7/2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18)	83.9x31.5x74.4 (2130x800x1890)	1962.1(890)
DEN-22Sh	134,20/120,07/105,94 (3,8/3,4/3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	47.2x31.5x39.4 (1200x800x1000)	1157.4(525)
DEN-22Sh-R (500 l)	134,20/120,07/105,94 (3,8/3,4/3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	70.9x31.5x67.3 (1800x800x1710)	1609.4(730)
DEN-22Sh-R (900 l)	134,20/120,07/105,94 (3,8/3,4/3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	80.7x31.5x74.4 (2050x800x1890)	1873.9(850)
DEN-22Sh-OR (500 l)	134,20/120,07/105,94 (3,8/3,4/3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	72.8x31.5x67.3 (1850x800x1710)	1741.7(790)
DEN-22Sh-OR (900 l)	134,20/120,07/105,94 (3,8/3,4/3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	83.9x31.5x74.4 (2130x800x1890)	2006.2(910)
DEN-30Sh	162,44/137,72/120,06 (4,6/3,9/3,4)	108,7/145/188,5 (7,5/10/13)	40,2 (30)	47.2x31.5x39.4(1200x800x1000)	1157.4(525)
DEN-30Sh+	201,29/176,57/148,32 (5,7/5,0/4,2)	116/145/188,5 (8/10/13)	40,2 (30)	47.2x39.4x55.1(1200x1000x1400)	1807.8(820)
DEN-37Sh	229,55/201,29/165,98 (6,5/5,7/4,7)	116/145/188,5 (8/10/13)	49,6 (37)	47.2x39.4x55.1(1200x1000x1400)	1873.9(850)
DEN-45Sh	264,84/229,53/183,63 (7,5/6,5/5,2)	116/145 (8/10)	60,3 (45)	63.8x47.2x58.3(1620x1200x1480)	2314.9(1050)
DEN-45ShM	247,20/229,55 (7,0/6,5)	101,5/145 (8/10/13)	60,3 (45)	63.4x39.4x60.2(1610x1000x1530)	1873.9(850)
DEN-55Sh	353,15/312,53/275,45 (10,0/8,85/7,8)	116/145/188,5 (8/10/13)	73,8 (55)	63.8x47.2x58.3(1620x1200x1480)	2866.0(1300)
DEN-75Sh	423,78/342,55/275,45 (12/9,7/7,8)	116/145/188,5 (8/10/13)	100,6 (75)	63.8x47.2x58.3(1620x1200x1480)	2866.0(1300)
DEN-75Sh+	476,75/406,12/346,08 (13,5/11,5/9,8)	116/145/188,5 (8/10/13)	100,6 (75)	77.2x52.8x64.2(1960x1340x1630)	3086.5(1400)
DEN-90Sh	487,34/413,18/360,21 (13,8/11,7/10,2)	108,7/145/188,5 (7,5/10/13)	120,7 (90)	77.2x52.8x64.2(1960x1340x1630)	3086.5(1400)
DEN-90Sh+	547,38/494,41/409,65 (15,5/14,0/11,6)	116/145/188,5 (8/10/13)	120,7 (90)	77.2x52.8x64.2(1960x1340x1630)	3747.9(1700)
DEN-110Sh	670,98/593,29/476,75 (19,0/16,8/13,5)	116/145/188,5 (8/10/13)	147,5 (110)	77.2x52.8x64.2(1960x1340x1630)	3968.3(1800)
DEN-132ShM	794,58/582,69 (22,5/16,5)	101,5/145 (7/10)	177,0 (132)	98.4x57.1x71.7(2500x1450x1820)	5291.1(2400)
DEN-132ShM+	847,55/670,98 (24,0/19,0)	116/145 (8/10)	177,0 (132)	116.1x70.9x77.2(2950x1800x1960)	6834.3(3100)
DEN-160ShM	1024,13/935,84 (29,0/26,5)	116/145 (8/10)	214,6 (160)	116.1x70.9x77.2(2950x1800x1960)	8046.9(3650)
DEN-200ShM	1253,67/953,50 (35,5/32)	116/145 (8/10)	268,2 (250)	116.1x70.9x77.2(2950x1800x1960)	8267.3(3750)
DEN-250ShM	1483,22 (42)	101,5 (7)	335,3 (250)	133.9x82.7x82.7 (compressor) 63.0x39.4x74.8 (cooling) (3400x2100x2100 (compressor) 1600x1000x1900 (cooling))	10251.5(4650)
DEN-315ShM	1483,22 (42)	145 (10)	422,4 (315)	133.9x82.7x82.7 (compressor) 48.0x78.3x82.7 (cooling) (3400x2100x2100 (compressor) 1220x1990x2100 (cooling))	10251.5(4650)
DEN-315SHM	1906,99 (54)	108,7 (7,5)	422,4 (315)	135.8x82.7x82.7 (compressor) 48.0x74.8x82.7 (cooling) 21.7x52.0x90.8 (control) (3450x2100x2100 (compressor) 1220x1900x2100 (cooling) 550x1320x2307 (control))	11397.9(5170)
DEN-400ShM	1906,99 (54)	145 (10)	455,9 (340)		

Sh - sound-absorbing cabinet, M - flexible coupling, O - air dryer, R - air receiver

DEN Screw Compressor Units

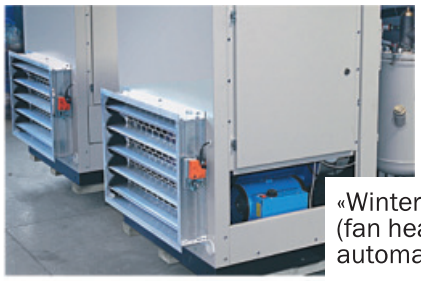
Available options

Option	DEN-4	DEN-5,5	DEN-7,5	DEN-5,5Sh	DEN-7,5Sh	DEN-11Sh	DEN-15Sh	DEN-18Sh	DEN-22Sh	DEN-30Sh	DEN-37Sh	DEN-45Sh DEN-45ShM	DEN-55Sh	DEN-75Sh	DEN-90Sh	DEN-110Sh	DEN-132ShM	DEN-160ShM	DEN-200ShM	DEN-250ShM DEN-315ShM DEN-400ShM
Chassis	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-
Vessel (receiver)	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
Chassis and vessel (receiver)	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-
«Winter package» (fan heater + automatic jalousie)	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	-	-	-	-
Schneider Electric smooth start device	-	-	-	-	+	+	+	+	+	+	+	ST	+	+	+	+	ST	ST	ST	ST
Remote control	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Air prefilter	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Flexible connection to the grid (RVD) or a high pressure metal hose (MR)	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	RVD	MR	MR	MR	MR
Separator QA-C, AG-Z	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Company color painting*	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Reactive power compensation device (RPCD)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
Lifting textile slings	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+
Maintenance instruments kit	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Table symbols: (+) - option is available (-) - option is not available ST - option is available in a standard version
* - in case of more then 10 pieces' ordering



Compressor unit on chassis



«Winter package» (fan heater + automatic jalousie)



Reactive power compensation device (RPCD)



Separator QA-C



Metacentre remote control



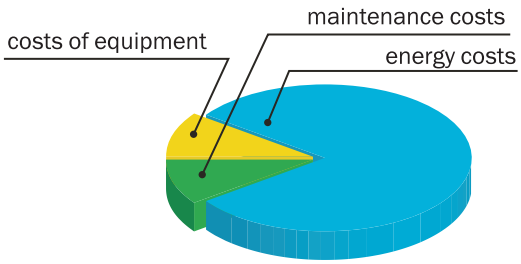
Schneider Electric smooth start device

DEN «OPTIM» Compressor Units with Variable Speed Drive



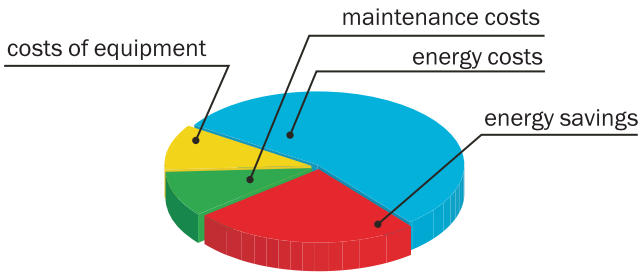
Compressors DEN «OPTIM» are equipped with a variable speed drive which allows to sufficiently save the electricity.

When purchasing new equipment it's important to pay attention to initial investment together with operation costs of the purchased compressors. The main part of the costs is comprised of energy costs. Using modern compressors DEN «OPTIM» you will save up to 30% of electricity with the same maintenance costs and slightly higher compressor price (compared to standard compressor DEN). Payback period of the compressor DEN «OPTIM» is usually no longer then one year.



cost allocation without compressor frequency drive

Figure 1.



sharing the costs of the compressor with variable speed drive

Figure 2.

Frequency drive allows:

Serve as a consumer of compressed air, as needed at the moment.

Maintain a positive pressure in the pneumatic system with a precision of 0.01 MPa.
Increasing the pressure increases by 0.1 MPa, the power consumption of 6-8% (Scheme 2).

Avoid the standard mode «work - idle - work» by reducing power consumption in unproductive idle. Savings in excess of 30%, depending on the operating mode.

Reduce the load on the grid enterprises inrush currents do not exceed the operating parameters (Figure 3).

Extend the life of the compressor by operating the compressor unit at a reduced speed.

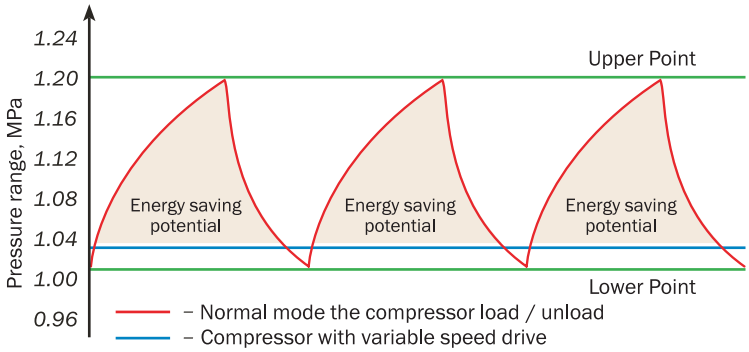


Figure 3.

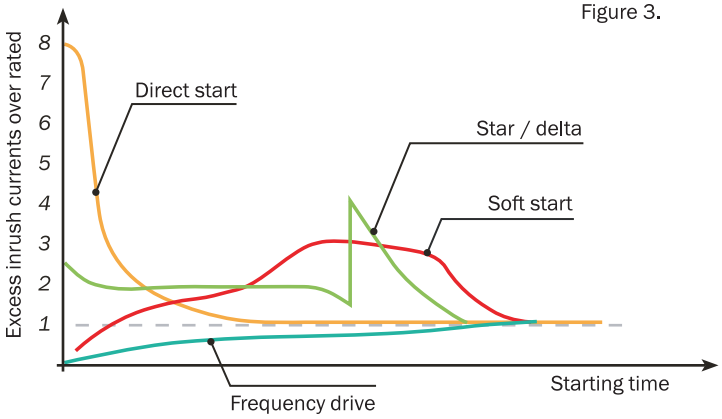


Figure 4.

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DEN «OPTIM» Compressor Units with Variable Speed Drive

For a group of compressors one variable speed drive compressor will be sufficient for capacity control. The compressor with a variable speed drive smoothens irregularity in compressed air demand (sustaining stable pressure in pneumatic circuit) and if necessary switches or shuts off a compressor without a variable speed drive.

Technical characteristics

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power, HP (kW)	Dimensions, LxWxHin (mm)	Weight, lb (kg)
DEN-5,5Sh "Optim"	14,13-28,25 / 11,3-22,25 / 9,53-19,07 (0,4-0,8 / 0,32-0,63 / 0,27-0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	37,0x23,6x29,5 (940x600x750)	440,9 (200)
DEN-5,5Sh-R (250 l)"Optim"	14,13-28,25 / 11,3-22,25 / 9,53-19,07 (0,4-0,8 / 0,32-0,63 / 0,27-0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	53,9x25,0x55,5 (1370x635x1410)	661,4 (300)
DEN-5,5Sh-R (500 l)"Optim"	14,13-28,25 / 11,3-22,25 / 9,53-19,07 (0,4-0,8 / 0,32-0,63 / 0,27-0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	70,7x25,0x55,5 (1796x635x1410)	881,8 (400)
DEN-5,5Sh-OR (500 l)"Optim"	14,13-28,25 / 11,3-22,25 / 9,53-19,07 (0,4-0,8 / 0,32-0,63 / 0,27-0,54)	101,5/145/188,5 (7/10/13)	7,4 (5,5)	70,7x25,0x55,5 (1796x635x1410)	925,9 (420)
DEN-7,5Sh "Optim"	17,66-38,85 / 14,13-28,96 / 12,36-25,07 (0,5-1,1 /0,4-0,82 / 0,35-0,71)	101,5/145/188,5 (7/10/13)	10,1 (7,5)	37,0x23,6x29,5 (940x600x750)	551,2 (250)
DEN-7,5Sh -R (500 l)"Optim"	17,66-38,85 / 14,13-28,96 / 12,36-25,07 (0,5-1,1 /0,4-0,82 / 0,35-0,71)	101,5/145/188,5 (7/10/13)	10,1 (7,5)	70,7x25,0x55,5 (1796x635x1410)	992,1 (450)
DEN-7,5Sh-OP (500 l)"Optim"	17,66-38,85 / 14,13-28,96 / 12,36-25,07 (0,5-1,1 /0,4-0,82 / 0,35-0,71)	101,5/145/188,5 (7/10/13)	10,1 (7,5)	70,7x25,0x55,5 (1796x635x1410)	1047,2 (475)
DEN-11Sh"Optim"	31,78-63,57 / 28,25-56,50 / 24,72-49,44 (0,9-1,8 / 0,8-1,6 / 0,7-1,4)	101,5/145/188,5 (7/10/13)	14,8 (11)	37,0x23,6x29,5 (940x600x750)	595,2 (270)
DEN-11Sh-R (500 l)"Optim"	31,78-63,57 / 28,25-56,50 / 24,72-49,44 (0,9-1,8 / 0,8-1,6 / 0,7-1,4)	101,5/145/188,5 (7/10/13)	14,8 (11)	70,7x25,0x55,5 (1796x635x1410)	1036,2 (470)
DEN-11Sh-OR (500 l)"Optim"	31,78-63,57 / 28,25-56,50 / 24,72-49,44 (0,9-1,8 / 0,8-1,6 / 0,7-1,4)	101,5/145/188,5 (7/10/13)	14,8 (11)	70,7x25,0x55,5 (1796x635x1410)	1102,3 (500)
DEN-15Sh"Optim"	45,91-95,35 / 42,38-84,76 / 35,31-74,16 (1,3-2,7 /1,2- 2,4 /1- 2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	47,2x31,5x39,4 (1200x800x1000)	1113,3 (505)
DEN-15Sh-R (500 l)"Optim"	45,91-95,35 / 42,38-84,76 / 35,31-74,16 (1,3-2,7 /1,2- 2,4 /1- 2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	70,9x31,5x67,3 (1800x800x1710)	1565,3 (710)
DEN-15Sh-R (900 l)"Optim"	45,91-95,35 / 42,38-84,76 / 35,31-74,16 (1,3-2,7 /1,2- 2,4 /1- 2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	80,7x31,5x74,4 (2050x800x1890)	1807,8 (820)
DEN-15Sh-OR (500 l)"Optim"	45,91-95,35 / 42,38-84,76 / 35,31-74,16 (1,3-2,7 /1,2- 2,4 /1- 2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	72,8x31,5x67,3 (1850x800x1710)	1653,5 (750)
DEN-15Sh-OR (900 l)"Optim"	45,91-95,35 / 42,38-84,76 / 35,31-74,16 (1,3-2,7 /1,2- 2,4 /1- 2,1)	108,7/145/188,5 (7,5/10/13)	20,1 (15)	83,9x31,5x74,4 (2130x800x1890)	1918,0 (870)
DEN-18Sh"Optim"	52,97-109,48 / 45,91-95,35 / 38,85-77,69 (1,5-3,1 / 1,3-2,7 /1,1- 2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18,5)	47,2x31,5x39,4 (1200x800x1000)	1135,4 (515)
DEN-18Sh-R (500 l)"Optim"	52,97-109,48 / 45,91-95,35 / 38,85-77,69 (1,5-3,1 / 1,3-2,7 /1,1- 2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18,5)	70,9x31,5x67,3 (1800x800x1710)	1587,3 (720)
DEN-18Sh-R (900 l)"Optim"	52,97-109,48 / 45,91-95,35 / 38,85-77,69 (1,5-3,1 / 1,3-2,7 /1,1- 2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18,5)	80,7x31,5x74,4 (2050x800x1890)	1829,8 (830)
DEN-18Sh-OR (500 l)"Optim"	52,97-109,48 / 45,91-95,35 / 38,85-77,69 (1,5-3,1 / 1,3-2,7 /1,1- 2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18,5)	72,8x31,5x67,3 (1850x800x1710)	1719,6 (780)
DEN-18Sh-OR (900 l)"Optim"	52,97-109,48 / 45,91-95,35 / 38,85-77,69 (1,5-3,1 / 1,3-2,7 /1,1- 2,2)	108,7/145/188,5 (7,5/10/13)	24,8 (18,5)	83,9x31,5x74,4 (2130x800x1890)	1962,1 (890)
DEN-22Sh"Optim"	67,10-134,20 / 60,03-120,07 / 52,97-105,94 (1,9-3,8 / 1,7-3,4 / 1,5-3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	47,2x31,5x39,4 (1200x800x1000)	1157,4 (525)
DEN-22Sh-R (500 l)"Optim"	67,10-134,20 / 60,03-120,07 / 52,97-105,94 (1,9-3,8 / 1,7-3,4 / 1,5-3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	70,9x31,5x67,3 (1800x800x1710)	1609,4 (730)
DEN-22Sh-R (900 l)"Optim"	67,10-134,20 / 60,03-120,07 / 52,97-105,94 (1,9-3,8 / 1,7-3,4 / 1,5-3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	80,7x31,5x74,4 (2050x800x1890)	1873,9 (850)
DEN-22Sh-OR (500 l)"Optim"	67,10-134,20 / 60,03-120,07 / 52,97-105,94 (1,9-3,8 / 1,7-3,4 / 1,5-3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	72,8x31,5x67,3 (1850X800x1710)	1741,7 (790)
DEN-22Sh-OR (900 l)"Optim"	67,10-134,20 / 60,03-120,07 / 52,97-105,94 (1,9-3,8 / 1,7-3,4 / 1,5-3,0)	108,7/145/188,5 (7,5/10/13)	29,5 (22)	83,9x31,5x74,4 (2130x800x1890)	2006,2 (910)
DEN-30Sh"Optim"	81,22-162,45 / 68,86-137,73 / 60,03-120,07 (2,3-4,6 / 1,95-3,9 / 1,7-3,4)	108,7/145/188,5 (7,5/10/13)	40,2 (30)	47,2x31,5x39,4 (1200x800x1000)	1157,4 (525)
DEN-30Sh+"Optim"	98,88-201,29 / 88,29-176,57 / 74,16-148,32 (2,8-5,7 / 2,5-5,0 / 2,1-4,2)	116/145/188,5 (8/10/13)	40,2 (30)	47,2x39,4x55,1 (1200x1000x1400)	1807,8 (820)
DEN-37Sh"Optim"	113,01-229,55 / 98,88-201,29 / 81,22-165,98 (3,2-6,5 / 2,8-5,7 / 2,3-4,7)	116/145/188,5 (8/10/13)	49,6 (37)	47,2x39,4x55,1 (1200x1000x1400)	1873,9 (850)
DEN-45Sh"Optim"	123,6-247,2 / 113,01-229,55 (3,5-7,0 / 3,2-6,5)	116/145 (8/10)	60,3 (45)	63,8x47,2x58,3 (1620x1200x1480)	2314,9 (1050)
DEN-45ShM"Optim"	123,60-247,20 / 113,01-229,55 (3,5-7,0 / 3,2-6,5)	101,5/145 (7/10)	60,3 (45)	63,4x39,4x60,2 (1610x1000x1530)	1873,9 (850)

DEN «OPTIM» Compressor Units with Variable Speed Drive

Technical characteristics

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power, HP (kW)	Dimensions, LxWxHin (mm)	Weight, lb (kg)
DEN-55Sh"Optim"	175,57-353,15 / 155,38-312,53 / 137,73-275,45 (5-10,0 / 4,4-8,85 / 3,9-7,8)	116/145/188,5 (8/10/13)	73,8 (55)	63,8x47,2x58,3 (1620x1200x1480)	2866,0 (1300)
DEN-75Sh"Optim"	211,89-423,78 / 169,51-342,55 / 137,73-275,45 (6-12 / 4,8-9,7 / 3,9-7,8)	116/145/188,5 (8/10/13)	100,6 (75)	63,8x47,2x58,3 (1620x1200x1480)	2866,0 (1300)
DEN-75Sh+"Optim"	236,61-476,75 / 201,29-406,12 / 173,04-348,08 (6,7-13,5 / 5,7-11,5 / 4,9-9,8)	116/145/188,5 (8/10/13)	100,6 (75)	77,2x52,8x64,2 (1960x1340x1630)	3086,5 (1400)
DEN-90Sh "Optim»	243,67-487,34 / 204,83-413,18 / 180,10-360,21 (6,9-13,8 / 5,8-11,7 / 5,1-10,2)	108,7/145/188,5 (7,5 / 10 /13)	120,7 (90)	77,2x52,8x64,2 (1960x1340x1630)	3086,5 (1400)
DEN-90Sh+ "Optim»	271,92-547,38 / 247,2-494,41 / 204,83-409,65 (7,7-15,5 / 7-14,0 / 5,8-11,6)	116/145/188,5 (8/10/13)	120,7 (90)	77,2x52,8x64,2 (1960x1340x1630)	3747,9 (1700)
DEN-110Sh"Optim"	335,49-670,98 / 296,64-593,29 / 236,61-476,75 (9,5-19,0 / 8,4-16,8 / 6,7-13,5)	116/145/188,5 (8/10/13)	147,5 (110)	77,2x52,8x64,2 (1960x1340x1630)	3968,3 (1800)
DEN-132ShM"Optim"	395,52-794,58 / 289,58-582,69 (11,2-22,5 / 8,2-16,5)	101,5/145 (7/10)	177 (132)	98,4x57,1x71,7 (2500x1450x1820)	5291,1 (2400)
DEN-132ShM+"Optim"	423,78-847,55 / 335,49-670,98 (12-24,0 / 9,5-19,0)	116/145 (8/10)	177 (132)	116,1x70,9x77,2 (2950x1800x1960)	6834,3 (3100)
DEN-160ShM"Optim"	512,06-1024,13 / 466,15-935,84 (14,5-29,0 / 13,2-26,5)	116/145 (8/10)	214,6 (160)	116,1x70,9x77,2 (2950x1800x1960)	8046,9 (3650)
DEN-200ShM"Optim"	625,07-1253,67 / 565,03-1130,07 (17,7-35,5 / 16-32)	116/145 (8/10)	268,2 (200)	116,1x70,9x77,2 (2950x1800x1960)	8267,3 (3750)
DEN-250ShM"Optim"	741,61-1483,22 (21-42,0)	101,5 (7)	335,3 (250)	133.9x82.7x82.7 (compressor) 63.0x39.4x74.8 (cooling) (3400x2100x2100) (compressor) (1600x1000x1900) (cooling)	10251,1 (4650)
DEN-315ShM"Optim"	741,61-1483,22 (21-42,0)	145 (10)	422,4 (315)	133.9x82.7x82.7 (compressor) 48.0x78.3x82.7 (cooling) (3400x2100x2100) (compressor) (1220x1990x2100) (cooling)	10251,1 (4650)
DEN-315ShM"Optim"	953,50-1906,99 (27-54,0)	101,5 (7)	422,4 (315)	135,8x82,7x82,7 (compressor) 48,0x74,8x82,7 (cooling) 21,7x51,6x90,8 (control) (3450x2100x2100) (compressor) (1220x1990x2100) (cooling) (551x1310x2307) (control)	11397,9 (5170)
DEN-400ShM"Optim"	953,50-1906,99 (27-54,0)	145 (10)	455,9 (340)		

Sh - sound-absorbing cabinet, M - flexible coupling, O - air dryer, R - air receiver

DEN «VOLT» Compressor Units, Designed for Operation at 6 kV(10kV) Voltage



Designed by CHKZ specialists screw compressors DEN «VOLT» enable our clients to get the following benefits:

- No need to install PTS (package transformer substation) which steps down the voltage from 6 (10)kV to 0,4kV;
- Power inputs reduction (because the power rates in 6kV network is lower);
- Increase of compressor unit electric motor life due to low inrush currents.

Technical characteristics

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power, HP (kW)	Dimensions, LxWxH in (mm)	Weight lb (kg)
DEN-160ShM "VOLT»	882.87/776.92 (25,0/22,0)	101.5/130.5 (7,0/9,0)	214.6 (160)	114.2x82.7x82.7 (2900x2100x2100)	(4950)
DEN-200ShM "VOLT»	11.83/1059.44/953.50 (33,5/30,0/27,0)	101.5/130.5/145.0 (7,0/9,0/10,0)	268.2 (200)		
DEN-250ShM "VOLT»	1483.22 (42,0)	101.5 (7,0)	335.3 (250)	133.9x82.7x82.7 (compressor) 63.0x39.4x74.8 (cooling) (3400x2100x2100 (compressor) 1600x1000x1900 (cooling))	(4650)
DEN-315ShM "VOLT»	1483.22 (42,0)	130.5 (9,0)	422.4 (315)	133.9x82.7x82.7(compressor) 48.0x78.3x82.7 (cooling) (3400x2100x2100 (compressor) 1220x1990x2100(cooling))	
DEN-315ShM "VOLT»	1906.99 (54,0)	101.5 (7,0)	422.4 (315)	140,2x88,6x86,6 (compressor) 48.0x74.8x82.7 (cooling) (3560x2250x2200 (compressor) 1220x1990x2100 (cooling))	(5170)
DEN-400ShM "VOLT»	1906.99 (54,0)	145.0 (10,0)	455.9 (340)		

Upon clients' demand Chelyabinsk Compressor Plant CJSC together with Chelyabinsk Electric Equipment Plant LLC can supply single-end service assembled chamber (KSO-203) for compressors DEN power connection to 6kV (10kV) network.

KSO-203 manufactured according to the Technical Requirements No. 3414-007-65711427-2010 is designed for acceptance and distribution of a three phase, 50 - 60 Hz frequency and 6 (10) kV voltage alternating current in a circuit with an isolated and arc-suppressing reactor grounded neutral.



The KSO consists of the most contemporary components, including commutation devices, isolators, overvoltage stoppers and modern microprocessor protection units. It provides supply reliability of the compressor units' in accordance with their peculiarities.

LLC «Chelyabinsk Electric Equipment Plant»
454085, Chelyabinsk, prospect Lenina, 2b, post office box 8814
Phone: (351) 777-34-64, 247-65-94, 239-90-31
Fax: 8(351) 246-15-18, 246-15-19
E-mail: info@chelzeo.ru www.chelzeo.ru

DEN «DEW» Compressor Units with Liquid Cooling System



For companies which already possess compressor equipment fleet with liquid cooling and a water cooling tower, or companies which have special operational environment CHKZ is ready to offer compressors with liquid cooling which are suitable in cases when air pipelines laying is impossible or unreasonable.



The units are supplied with high-efficient plate heat exchangers made of stainless steel. Their compact sizes allow to integrate the exchangers into the compressor units. Heat exchanger material and design guarantee long life service. Self-cleaning technology will provide minimal maintenance costs.

Technical characteristics

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power, HP (kW)	Cooling water consumption, gal./h (m3/h)	Dimensions, LxWxH in (mm)	Weight lb (kg)
DEN-75Sh «DEW»	423,78 / 342,55 / 275,45 (12 / 9,7 / 7,8)	116/145/188,5 (8 / 10 / 13)	100,6 (75)	792,5 (3,0)	63,8x47,2x58,3 (1620x1200x1480)	2866,0 (1300)
DEN-75Sh+«DEW»	476,5 / 406,12 / 346,08 (13,5 / 11,5 / 9,8)	116/145/188,5 (8 / 10 / 13)	100,6 (75)	1109,5 (4,2)	77,2x52,8x64,2 (1960x1340x1630)	3086,5 (1400)
DEN-90Sh «DEW»	487,34 / 413,18 / 360,21 (13,8 / 11,7 / 10,2)	108,7/145/188,5 (7,5 / 10 /13)	120,7 (90)	1109,5 (4,2)	77,2x52,8x64,2 (1960x1340x1630)	3086,5 (1400)
DEN-90Sh+«DEW»	547,38 / 494,41 / 409,65 (15,5 / 14,0 / 11,6)	116/145/188,5 (8 / 10 / 13)	120,7 (90)	1109,5 (4,2)	77,2x52,8x64,2 (1960x1340x1630)	3747,9 (1700)
DEN-110Sh «DEW»	670,98 / 593,29 / 476,75 (19,0 / 16,8 / 13,5)	116/145/188,5 (8 / 10 / 13)	147,5 (110)	1109,5 (4,2)	77,2x52,8x64,2 (1960x1340x1630)	3968,3 (1800)
DEN-132ShM+«DEW»	847,55 / 670,98 (24,0 / 19,0)	116/145 (8 / 10)	177 (132)	1452,95 (5,5)	116,1x70,9x77,2 (2950x1800x1960)	6834,3 (3100)
DEN-160ShM «DEW»	1024,13 / 935,84 (29,0 / 26,5)	116/145 (08 / 10)	214,6 (160)	1637,87 (6,2)	116,1x70,9x77,2 (2950x1800x1960)	8046,9 (3650)
DEN-200ShM «DEW»	1253,67 / 1130,07 (35,5 / 32)	116/145 (08 / 10)	268,2 (200)	1981,3 (7,5)	116,1x70,9x77,2 (2950x1800x1960)	8267,3 (3750)
DEN-250ShM «DEW»	1483,22 (42,0)	101,5 (7)	335,3 (250)	2377,55 (9,0)	133,9x82,7x82,7 (compressor) (3400x2100x2100) (compressor) LxWxH cooling module, depending on customer requirements	10251,5 (4650)
DEN-315ShM «DEW»	1483,22 (42,0)	145 (10)	422,4 (315)	2800,2 (10,6)	133,9x82,7x82,7 (compressor) (3400x2100x2100) (compressor) LxWxH cooling module, depending on customer requirements	10251,5 (4650)
DEN-315ShM «DEW»	1906,99 (54,0)	108,7 (7,5)	422,4 (315)	2800,2 (10,6)	135,8x82,7x82,7 (compressor) (3450x2100x2100) (compressor) LxWxH cooling module, depending on customer requirements 21,7x51,6x90,8 (551x1310x2307)(control)	11397,9 (5170)

Compressor units DEN-132, 160, 200,250, 315 ShM are equipped with a electric motor smooth start device. The electric motor smooth start device can be supplied from DEN-18Sh.

Sh - sound-absorbing cabinet, M - flexible coupling, O - air dryer, R - air receiver

CHELYABINSK
CHKZ COMPRESSOR PLANT

Explosion Proof DEN Screw Compressor Units

In order to satisfy customers needs CHKZ specialists have developed and certified several series of screw compressors DEN in an explosion-proof version.

The explosion proof compressors correspond to PBExdI and ExdIIT4 electric equipment level proof according to GOST R 51330.0 (GOST R MEK 60079-0).



DEN-5,5 ShM «Miner» compressor unit, «MN» design

DEN compressor units «Miner»

The units are designed to provide compressed air to pneumatic instruments, pneumatic drilling rigs and mechanism drives in underground mines, in pithead buildings. In non-hazardous gas, vapor and dust conditions the compressors are supplied in a «mining normal» version (MN) in accordance with the Safety Rules No.03-553-03. In gas- and dust hazardous conditions of blind workings the compressors are performed in MEP design (mining explosion proof) according to the Safety Rules No.05-618-03.

Upon customers demand «CHKZ» CJSC builds a compressor in MN or MEP design in performance range from 17,66 to 1483,44 CFM (from 0,5 to 42 m^3/min).

The model range is certified to conformity and has an official permit to use.



DEN-45 ShM «Miner» compressor unit, «MEP» design

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power, HP (kW)	Dimensions, LxWxH in (mm)	Weight, lb (kg)
DEN-5,5ShM «Miner»	28.25 (0,8)	101.5 (7,0)	7,4 (5,5)	47.6x23.2x47.4 (1210x590x1205)	771,6 (350)
DEN-7,5ShM «Miner»	42.38 (1,2)	101.5 (7,0)	10,1 (7,5)	40,9x23,6x37.0 (1040x600x940)	992,1 (450)
DEN-45ShM «Miner»	229.55 (6,5)	101.5 (7,0)	60,3 (45)	77.6x35.4x43.3 (1970x900x1100)	2866,0 (1300)
DEN-455ShM «Miner»	250.73 (7,1)	101.5 (7,0)	60,3 (45)	66,9x35,4x43,3 (1700x900x1100)	
DEN-75ShM «Miner»	388.46 (11,0)	101.5 (7,0)	100.6 (75)	90,6x41,3x43,3 (2300x1050x1100)	3902,2 (1770)
DEN-110ShM «Miner»	543.85 (15,4)	101.5 (7,0)	147,5 (110)	114,6x43,3x54,9 (2910x1100x1395)	7936,6 (3600)
DEN-132ShM «Miner»	776.92 (22,0)	101.5 (7,0)	177,0 (132)	121,3x58,1x70,9 (3080x1476x1802)	
DEN-200ShM «Miner»	953.50 (27,0)	145.0 (10,0)	268,2 (200)	117,3x70,9x94,5 (2980x1800x2400)	9479,9 (4300)

Options:

- mounting on a wheel pair or sledge;
- electric motor supply voltage 660/1140 (standard supply voltage 380/660);
- explosimetric sensor, dry-powder fire-extinguishing system.



DEN-7,5Sh(M) Ex compressor unit

DEN compressor units «Ex» type

The compressor units are designed to provide compressed air for production processes in gas, oil and petrochemical industry requiring electrical equipment with ExdIIT4 explosion proof marking according to GOST R 51330.0 (GOST R MEK 60079-0).

«CHKZ» CJSC may build a compressor Ex type in an output range from 17,66 to 1906,99 CFM (from 0,5 to 54 m^3/min). The model range is certified to conformity and has an official permit to use.

Model	Delivery, cfm (m^3/min)	Rated Operating Pressure, psig (barg)	Drive power, HP (kW)	Dimensions, LxWxH in (mm)	Weight, lb (kg)
DEN-7,5ShEx	42.38/28.25 (1,2/0,8)	101.5/145.0 (7,0/10,0)	10,1 (7,5)	37.0x23.6x42.5 (940x600x1080)	937,0 (425)
DEN-11ShEx	60.03/42.38 (1,7/1,2)	101.5/145.0 (7,0/10,0)	14,8 (11)		981,1 (445)
DEN-7,5ShEx	91.82 (2,6)	145.0 (10,0)	24,8 (18,5)	49.6x30,1x48,4 (1260x764x1230)	1135,4 (515)
DEN-30ShEx	176.57 (5,0)	145.0 (10,0)	40,2 (30)	47,2x47,2x60,2 (1200x1200x1530)	1873,9 (850)
DEN-132ShEx	794.58/582.69 (22,5/16,5)	101.5/145.0 (7,0/10,0)	177,0 (132)	98,4x57,1x71,7 (2500x1450x1820)	5291,1 (2400)

Sh - sound-absorbing cabinet, M - flexible coupling, O - air dryer, R - air receiver