



*i-14000***X**

i-14000

OIL FREE AIR COMPRESSOR

mitsubishi
SEIKI

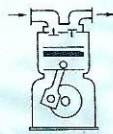
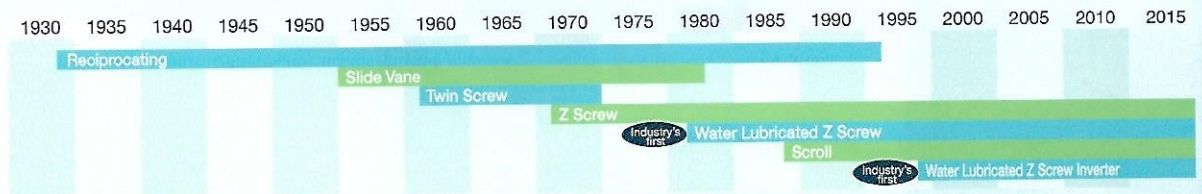
HIGH EFFICIENCY + CLEAN AIR = MITSUI SEIKI WATER LUBRICATE COMPRESSOR

Water lubrication is safe and sustainable.

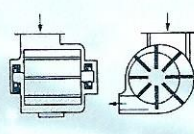
Since 1982, Mitsui Seiki has been providing water lubricate air compressor to various industries. With its unique compression mechanism using water instead of oil, Mitsui Seiki offers clean air, highly efficient air compressor contributing to both customer cost-saving and environment protection.

History and Types of Mitsui Seiki Compressors

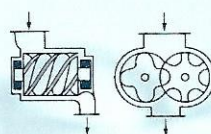
Mitsui Seiki has experience with many different types of compressors stretching back to 1934. In 1982, we launched sales of water lubricate Z screw compressor. More than 30years, we have provided energy efficient, clean air compressor all over the world.



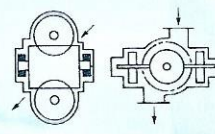
Reciprocating
1934 to 1996



Slide Vane
1955 to 1983



Twin Screw (SRM)
1961 to 1973



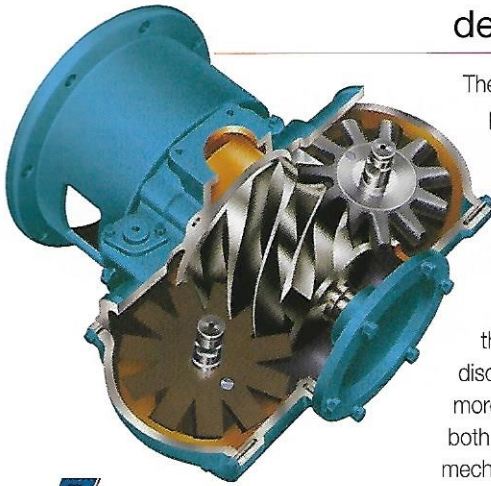
Single Screw (Z Screw)
1972 to Present



Scroll
1988 to Present



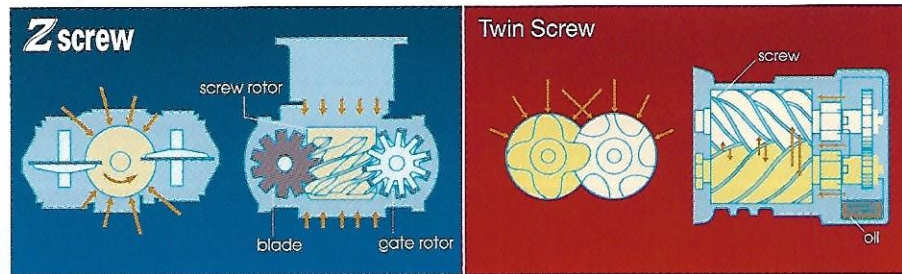
A simple construction and water-seal effect deliver ideal operating efficiency



Z screw

The Z Screw's construction uses a single screw rotor and two gate rotors, one placed on either side of the screw rotor. This simple construction transmits pressure to the rotating axle with good balance, and prevents excessive load on the bearings. This is one of the reasons for the Z Screw's high efficiency. The water used as a lubricating medium also seals gaps inside the compression chamber. Compressed air is thus kept from leaking, enabling the Z Screw to generate sufficient discharge even at low rotating speeds. This reduces both noise and vibration. The cooling effect of the water lubricant also prevents heating from the compression process (the discharge air temperature is about 40°C), making the compression process more efficient and eliminating the need for a cooling apparatus. This improves both safety and durability significantly. The fusion of our unique compression mechanism and new water-lubrication technology is helping greatly to improve energy efficiency in a wide range of fields.

Comparison of Z Screw with Dry Twin Screw



- Radial and axial loads cancel each other, resulting a theoretically zero load
- Water seal enables highly efficient operation at low speeds
- Cool air discharge (about 40°C)

- Radial load and distance between the two screw axles place significant limitations on bearing load
- Screw must operate at high speeds in order to prevent compressed air from leaking
- Hot air discharge (about 300°C)

Advantages of Water Lubrication

One Stage Compression

Simple Structure
Low Maintenance Cost
Direct Connection with Motor
(No Gear).

Water Sealing/ Cooling

Low Rotation Speed
Low Temperature
Ideal Isothermal Compression

No Oil Inside

No oil used inside compressor.
Clean air. No cost for oil filter,
separator or drain terminator.

We offer a wide lineup of products to suit

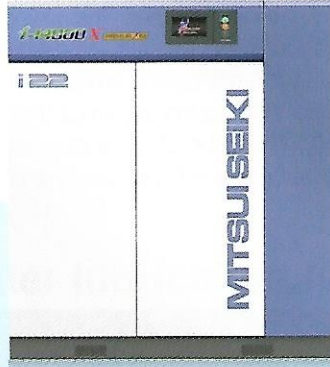
MITSUI New Technology X Series - Oil Free Inverter Compressor

MITSUI SEIKI OIL FREE SCREW COMPRESSOR SERIES

i-14000 X series

Water Lubricated Inverter Oil Free Compressor

Air Cooled 22/37 kW (Option : Water Cooled 22/37kW)
22kW / 37kW



Water lubrication	Increasing	High efficiency
Oil free	IT touch panel	Air cooled fan inverter
Inverter	Red-CX compatible	Built-in RO treatment
IPM motor	Energy saving	

Details ▶ 5,6

Next generation oil free compressor

MITSUI SEIKI OIL FREE SCREW COMPRESSOR SERIES

i-14000 series

Water Lubricated Inverter Oil Free Compressor

Air cooled 15-75kW
15kW / 30kW / 45kW / 55kW / 75kW

Water cooled 55-220kW (option: water cooled 15-45kW)
55kW / 75kW / 100kW / 150kW / 180kW / 220kW



Water lubrication	Red-CX compatible
Oil free	Energy saving
Inverter	Environmentally friendly
IPM motor	High efficiency
Increasing	Air cooled fan inverter
IT touch panel	

Details ▶ 7,8

Standard models with simple design optimized for environmental performance

MITSUI SEIKI OIL FREE SCREW COMPRESSOR SERIES

u-14000 series

Water Lubricated Oil Free Compressor

Air cooled 15-75kW
15kW / 22kW / 37kW / 55kW / 75kW

Water cooled 55/75kW (option: water cooled 15-37kW)
55kW / 75kW



Water lubrication	Red-CX compatible	Air cooled fan inverter
Oil free	Energy saving	
IE3 motor	Environmentally friendly	
IT touch panel	High efficiency	

Details ▶ 9

Next generation inverter oil free compressor

z-14000 series

MITSUBI SEIKI OIL FREE SCREW COMPRESSOR SERIES

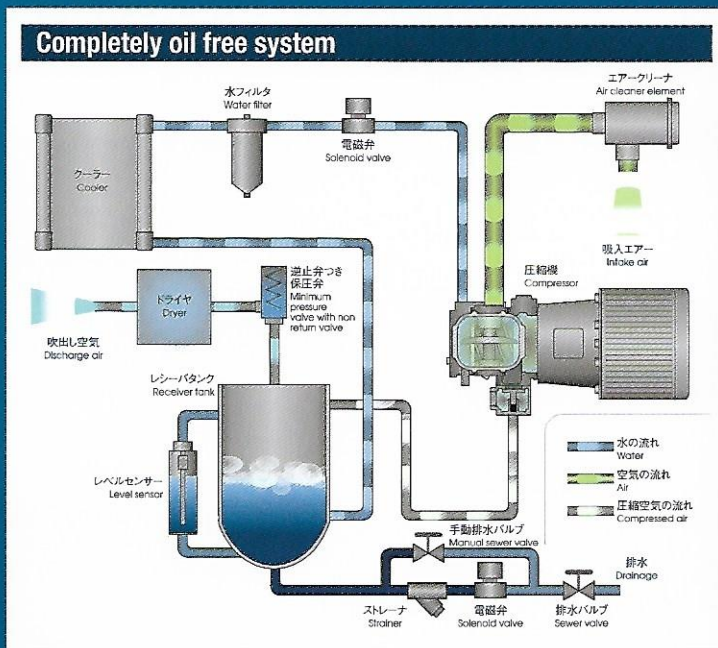
Water Lubricated Inverter Oil Free Compressor

Air Cooled 15~75kW

Water Cooled 55~220kW

優秀省エネルギー機器
 日本機械工業連合会会長賞
受賞

Simple Construction
Easy Maintenance
 "Water Lubricated Inverter Oil Free Compressor"



IPM motor and direct drive improve operating efficiency and durability

The compressor is equipped with the latest IMP motor with a built in permanent magnet in the rotor. It does not suffer power loss and slips of conventional induction motor, and its motor efficiency is 5% higher. The use of direct drive also eliminates power transmission loss, and the need for belt maintenance.

55/75kW Built-in Cooler Type Debut Small Installation Space

35% Less Space! No Cooler Unit.



IPM motor (IE4 equivalent) Super Premium Efficiency

Motor Efficiency Standard

IE1	... Normal Motor
IE2	... High Efficient Motor
IE3	... Premium High Efficient Motor
IE4 equivalent	... Super Premium High Efficient Motor



- Water lubrication
- oil free
- Inverter
- IPM motor
- Increasing
- IT touch panel
- RED-CX compatible
- Energy saving
- Environmentally friendly
- High efficiency
- Air cooled fan inverter

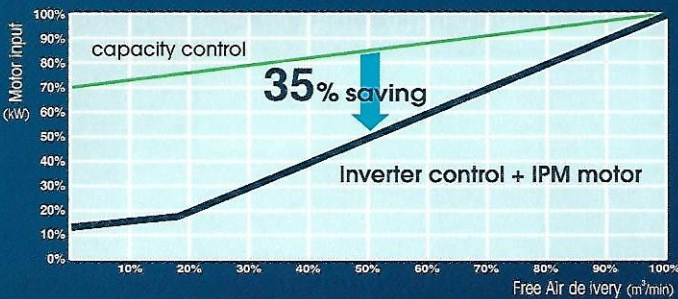
Synergy with inverter control greatly improves energy efficiency

The Z Screw and water lubrication system enable highly efficient operation even at low speeds. This makes it possible to take full advantage of the inverter's rotation control capabilities, thereby enabling highly energy efficient operation, and truly making this the ideal compressor for an era focused on cost and the environment.

Energy saving Benefits of i-14000

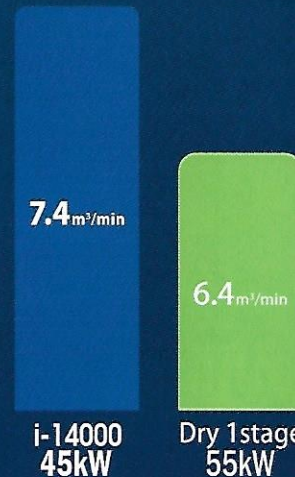
75kW model

Air discharge volume: 60% Electricity cost: ¥15/kWh Time of operation: 6,000 h/year



Average power	Annual power	Annual CO ₂
35% reduction	¥2.24 million reduction	86 t-CO₂ reduction

Comparison of Free Air Delivery



Why Mitsui Seiki so efficient?

Inverter Benefit Example

Model	i-14015A3-R	i-14030A3-R	i-14045A3-R	i-14055A3-R	i-14075A3-R
Motor output	15kW	30kW	45kW	55kW	75kW
CO ₂ reduction (year)	17ton	33ton	50ton	63ton	86ton
Power reduction (year)	¥440k	¥860k	¥1,290k	¥1,640k	¥2,240k

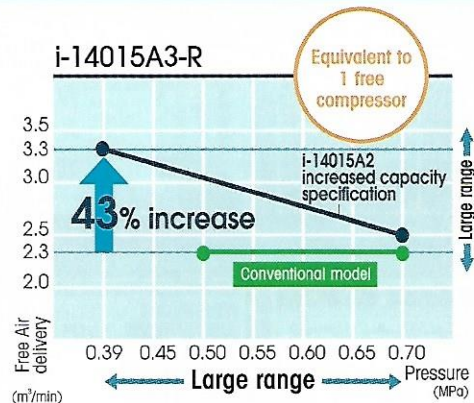
*Conditions Load: 60% Electricity cost: ¥15/kWh Time of operation: 6,000 h/year CO₂ emission factor: 0.579 kg/CO₂/kWh

Select the Optional System to Suit Your Needs

Efficient support for higher discharge capacity needs

Low-pressure high-capacity Increasing Option

This option enables compressor to discharge increased air delivery with lower pressure.
For example, 15kW increasing option model can discharge 43% bigger air volume at 0.39MPa.
Please ask Mitsui Seiki about detail information for this option.



i-14000 inverter specifications 15kW to 220kW

Model	i-14015A3-R	i-14022A3-R	i-14030A3-R	i-14037A3-R	i-14045A3-R	i-14055A4-R	i-14075A4-R	i-14055W3-R	i-14075W3-R	i-14100W	i-14150W	i-14180W	i-14220W
Delivered air pressure (MPa)	0.7 (0.39) [※]												
Free air delivery (m ³ /min)	2.5 (3.3) [※]	3.8 (4.7) [※]	4.8 (5.5) [※]	6.58 (7.6) [※]	7.4 (8.8) [※]	9.5 (11.8) [※]	13.0 (14.7) [※]	9.5 (11.8) [※]	13.0 (14.7) [※]	17.4 (19.9) [※]	25.0 (25.9) [※]	31.0 (36.0) [※]	37.5 (38.5) [※]
Intake conditions	Atmospheric pressure (2-40°C)												
Main motor power (kW)	15	22	30	37	45	55	75	55	75	100	150	180	220
Power source voltage (50/60Hz/V)	200/200-220												
Motor type	Totally enclosed fan cooled IPM motor												
Starter	Inverter starter												
Drive system	Direct coupled motor												
Cooling system	Air cooled						Air cooled			Water cooled			
Fan motor power (kW)	1.5 (Inverter control)	2.2 (Inverter control)	3.0 (Inverter control)	3.7 (Inverter control)	3.0 (Inverter control)	7.5 (Inverter control)	0.15/0.22			(0.15/0.22)×2			
Lubrication water volume (L)	23		26		40		65		100		135		200
Air dew point at outlet (°C)	10 (under applied pressure)*												
Dryer Refrigerator power (refrigerant-40°C) (kW)	0.55/0.63/0.66		1.1/1.3		1.5/1.8		1.4/1.7		2.1/2.5		2.4/2.8		2.1/2.5 2.9/3.6
Dryer Refrigerant	R-407C		R-410A		R-407C		R-410A		R-407C		-		
Dryer Refrigerant amount	280		650		800		1050		900		1300		800 2200
Discharge pipe diameter (R)	1				1 1/2		2		JIS 10k 3B (80A) flange JIS 10k 4B (100A) flange				
Dimensions Width (w/out dryer) (mm)	1457 (1277)		1780 (1430)		2068 (1850)		2538 (2195)		2450 (2005)		2300 (1860) 2600 (1860)		(2750)
Dimensions Length (mm)	750				900		1190		1200		1200		1500
Dimensions Height (mm)	1510		1640		1510		1715		1595		1800		1500
Total mass (dry) (kg)	610		700		730		1050		1090		-		1480 1350 1520 2100 2400 3050 3100
Noise level (dB (A))	54~57		55~59		56~63		61~65		59~66		-		63.5~69 61~63 63.5~65 65~67 66~70 64~69 66~70

Cautions: Dryer of low pressure specifications (factory option) shall be separate type. Please contact us for dryer dimensions and mass.
 Values in () are the free air delivery for 0.39MPa specification (factory option)
 * Values with ambient temperature of 30°C and rated discharge pressure.
 ※ Specifications for discharge pressure of 0.93MPa (factory option) available on request.
 ◎ 380 / 400 / 440V option is also available.
 ◎ Noise values measured in noiseless environment at distance of 1.5 meters from front, at height of 1m, with load of 60 to 100% (at 0.7MPa)
 ◎ Specifications for 15 to 45kW water-cooled unit available on request (factory option).
 ◎ Cooling water volume (water temp. 32°C): 55kW: 150L/min; 75kW: 200L/min; 100kW: 250L/min; 150kW: 300L/min; 180kW: 430L/min; 220kW: 430L/min

u-14000 15kW to 75kW

Model	u-14015A3-R u-140156A3-R	u-14022A3-R u-140226A3-R	u-14037A3-R u-140376A3-R	u-14055A3-R u-140556A3-R	u-14075A3-R u-140756A3-R	u-14055W3-R u-140556W3-R	u-14075W3-R u-140756W3-R
Delivered air pressure (MPa)	0.7						
Free air delivery (m ³ /min)	2.3	3.5	6.1	9.5	13.0	9.5	13.0
Intake conditions	Atmospheric pressure (2-40°C)						
Main motor power (kW)	15	22	37	55	75	55	75
Power source voltage (50/60Hz/V)	200/200-220						
Motor type	3-phase squirrel case, 2P totally enclosed external fan (IE3 motor)						
Starter	Direct in			3-contactor, star delta start			
Drive system	Direct drive by coupling						
Cooling system	Air cooled			Air cooled (separate unit)		Water cooled	
Fan motor power (kW)	1.5 (Inverter control)	2.2 (Inverter control)	3.0 (Inverter control)	7.5 (Inverter control)	+0.15/0.22		0.15/0.22
Lubrication water volume (L)	23		40		100		
Air dew point at outlet (°C)	10 (under applied pressure)*						
Dryer Refrigerator power (refrigerant-40°C) (kW)	0.55/0.63/0.66		1.5/1.8		1.5/1.9		2.1/2.5 2.9/3.6
Dryer Refrigerant	R-407C						
Dryer Refrigerant amount	280		600		800		800 2200
Discharge pipe diameter (R)	1		1 1/2		2		
Dimensions Width (w/out dryer) (mm)	1457 (1277)		2068 (1850)		2300 (1860)		2600 (1860) 2300 (1860) 2600 (1860)
Dimensions Length (mm)	750		1500		1200		
Dimensions Height (mm)	1510		1595		1500		
Total mass (dry) (kg)	670		750		1160		1480 1705 1530 1805
Noise level (dB (A))	57		59		65		69 69 65 69

* Values with ambient temperature of 30°C and rated discharge pressure.
 ◎ For 55 kW/75 kW Air cooled devices, a separately installed cooler unit (1,560 x 1,115 x 1,500 (WxLxH) / 585kg (mass)) is included in addition to the main unit.
 ◎ Specifications for 15 to 37kW water-cooled unit and 75kW high-voltage 3,000/3,300V available on request (optional).
 ◎ Noise values measured in noiseless environment at distance of 1.5 meters from front, at height of 1m, with load of 60 to 100% (at 0.7MPa)
 ◎ Cooling water volume (water temp. 32°C): 55kW: 150L/min; 75kW: 200L/min
 ◎ 380 / 400 / 440V option is also available.

Notation

i-14030A3-R

① ② ③ ④ ⑤

- ① i-14000 series (oil-free/inverter)
- ② 30kW
- ③ Air cooled
- ④ Type name
- ⑤ Built-in air dryer

u-140225A3-R

① ② ③ ④ ⑤ ⑥

- ① u-14000 series (oil-free)
- ② 22kW
- ③ 50Hz
- ④ Air cooled
- ⑤ Type name
- ⑥ Built-in air dryer

Compressor installation

Precautions for installation location

Some installation environments can damage the compressor or cause malfunctions. Please follow the precautions below in order to ensure the efficient, safe, and long-term use of your compressor.

Installation environment

- ▲ Avoid installing outdoors, in semi-outdoor locations, in locations exposed to rain, and the like.
- ▲ Avoid installing in locations exposed to dust or toxic gases.
- ▲ Install in a location with an ambient temperature between 2 and 40°C.
(We recommend the optional cold-weather specification if installing in temperatures of 2°C and lower)

Location

- ▲ Install on a firm, level floor.
- ▲ Install in a spacious, well lit location enabling operation to be monitored easily.
- ▲ There should be no impediments to transporting the unit to/from the location or performing maintenance.

Electrical wiring

- ▲ All electrical wiring during installation must be done in accordance with technical standards. Electrical leaks, worn insulation, overcurrent, short circuits, open-phase driving, and defective protective equipment could cause sparks from the electrical wiring or electronic circuits.
- ▲ Install a non-fuse breaker on the main power line if the model so requires.
- ▲ Connect a ground cable to prevent electrical leaks.
- ▲ Never remove protective equipment or perform modifications that disables an electronic circuit's protective features.

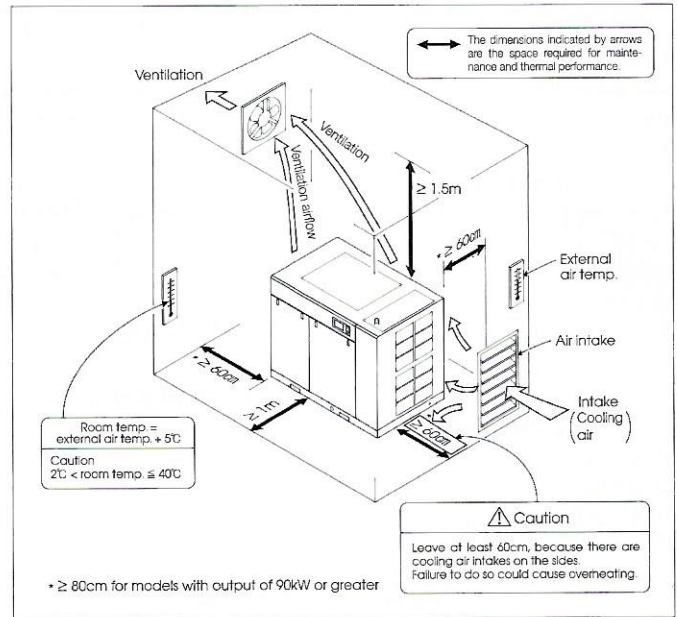
Maintenance

- ▲ We recommend conducting maintenance and inspection ahead of the standard schedule in accordance with the installation environment and location.

Ventilation

- ▲ The compressor room must be ventilated. Install a ventilation fan, duct, or the like so that the ambient temperature does not exceed 40°C. Failure to do so could cause the compressor to overheat, or damage the insulation of electrical components.

Installation space



Selected examples of installation

Please consult with Mitsui Seiki or a designated service shop for details

Model	Non-fuse breaker		Power transformer Capacity* (200/400V)	Secondary wiring cable				Cooling tower For CT outlet temp. of 32°C
	200/220V	400/440V		~ 22 kW ... ≤ 10 m	37kW ... ≤ 20 m	Grounding cable		
i-14015A3-R	100AF-100AT	50AF-50AT	30KVA	22mm²M8	14mm²M6	8mm²M5	8mm²M5	≤5t
i-14022A3-R	225AF-150AT	100AF-75AT	40KVA	38mm²M8	22mm²M6	14mm²M6	14mm²M6	≤10t
i-14030A3-R	225AF-175AT	100AF-100AT	55/60KVA	60mm²M8	38mm²M6	22mm²M6	14mm²M6	≤10t
i-14037A3-R	225AF-225AT	225AF-125AT	65/70KVA	100mm²M10	38mm²M8	22mm²M8	22mm²M8	≤10t
i-14045A3-R	400AF-300AT	225AF-150AT	75/85KVA	100mm²M10	60mm²M8	38mm²M8	22mm²M8	≤15t
i-14055A3-R	400AF-350AT	225AF-175AT	95KVA	100mm²M12	38mm²M8	60mm²M8	22mm²M8	—
i-14055W3-R	400AF-350AT	225AF-175AT	95KVA	100mm²M12	38mm²M8	60mm²M8	22mm²M8	≤15t
i-14075A4-R	400AF-400AT	225AF-225AT	130KVA	150mm²M12	38mm²M10	60mm²M10	38mm²M10	—
i-14075W3-R	400AF-400AT	225AF-225AT	130KVA	150mm²M12	38mm²M10	60mm²M10	38mm²M10	≤20t
i-14100W2	—	400AF-250AT	200KVA	—	—	100mm²M12	38mm²M12	≤30t
i-14150W2	—	400AF-350AT	250KVA	—	—	100mm²M12	38mm²M12	≤30t
i-14180W2	—	600AF-500AT	300KVA	—	—	200mm²M12	38mm²M12	≤40t
i-14220W2	—	600AF-600AT	350KVA	—	—	250mm²M12	38mm²M12	≤40t
u-14015A3-R	100AF-100AT	100AF-60AT	25KVA	22mm²M8	14mm²M5	14mm²M5	14mm²M5	≤5t
u-14022A3-R	225AF-200AT	100AF-100AT	35KVA	38mm²M10	22mm²M5	22mm²M8	22mm²M5	≤10t
u-14037A3-R	※1 NV250-SEV,HEV 時延形 NF250-SEV,HEV-225AT	NF250-SEV,HEV-150AT	55KVA	100mm²M10	38mm²M5	38mm²M10	22mm²M5	≤10t
u-14055A3-R	NF400-SEW,HEW-400AT	225AF-225AT	80KVA	150mm²M12	38mm²M8	60mm²M8	22mm²M8	—
u-14055W3-R	NF400-SEW,HEW-400AT	225AF-225AT	80KVA	150mm²M12	38mm²M8	60mm²M8	22mm²M8	≤15t
u-14075A3-R	※2 NV400-SEW,HEW 時延形 NF400-SEW,HEW-400AT	※1 NV250-SEV,HEV 時延形 NF250-SEV,HEV-225AT	110KVA	200mm²M12	38mm²M8	100mm²M10	22mm²M10	—
u-14075W3-R	※2 NV400-SEW,HEW 時延形 NF400-SEW,HEW-400AT	※1 NV250-SEV,HEV 時延形 NF250-SEV,HEV-225AT	110KVA	200mm²M12	38mm²M8	100mm²M10	22mm²M10	≤20t
ZU08A5	100AF-60AT	50AF-40AT	15KVA	8mm²M5	5.5mm²M5	3.5mm²M4	5.5mm²M4	—
ZU11A5	100AF-75AT	50AF-50AT	20KVA	14mm²M6	14mm²M6	5.5mm²M4	14mm²M5	—

◎ Use recommended SEV, SEW or HEV breaker (made by Mitsubishi Electric Corporation).
 ◎ Use recommended NV series leak-detect type breaker or NF series non-fuse breaker (made by Mitsubishi Electric Corporation).
 ◎ For 55kW and smaller compressor, size of cable is calculated when continuous maximum allowed temp of cable is 75°C (HIV wire) and ambient temperature < 50°C, wiring length below 20m.
 ◎ For 75kW and bigger compressor, size of cable is calculated when continuous maximum allowed temp of cable is 90°C (LMFC wire) and ambient temperature < 50°C, wiring length below 20m.
 ※ Air cooling machine do not need cooling tower. For water cooling compressor and 15-45kW water cool option machine, please check cooling tower capacity in above list.
 ◎ For other models and specs, please contact Mitsui Seiki for detailed information.
 ◎ Wiring size of inverter compressor is calculated when continuous maximum allowed temp of cable is 75°C HIV wire (55kW and below), 90°C LMFC wire (75kW and bigger). Wiring length below 20m.
 ※ For u-14037A3-R, u-14075A3-R and u-14075W3-R, please use designated Mitsubishi Breaker instantaneous tripping current adjustable up to 16x type.

Ventilating the compressor room

Be very careful to ventilate the compressor room!

The compressor room must be ventilated. Install a ventilation fan, duct, or the like so that the ambient temperature does not exceed 40°C. Failure to do so could cause the compressor to overheat, or damage the insulation of electrical components.

Precautions for installation location

⊗ Some installation environments can damage the compressor or cause malfunctions. Please follow the precautions below in order to ensure the efficient, safe, and long-term use of your compressor.

Installation environment

- ⚠ Avoid installing outdoors, in semi-outdoor locations, in locations exposed to rain, and the like.
- ⚠ Avoid installing in locations exposed to dust or toxic gases.
- ⚠ Install in a location with an ambient temperature between 2 and 40°C.
(We recommend the optional cold-weather specification if installing in temperatures of 2°C and lower)

	Figure A. Overall ventilation	Figure B. Duct ventilation (ventilation via compressor exhaust fan only)
Ventilation method		
Precautions	<p>This is the most common ventilation method. See the table below (Fig. A) for the ventilation volume when the compressor is installed in a small room, and you ventilate the room as a whole. (This assumes an increase of 5°C of the permissible temperature in the room.) Install the ventilation fan in a high location, and the air intake in a low location facing the side of the compressor where the air intake is located. Ensure that the airflow at the air intake is no more than 2m/sec.</p> <p style="text-align: center;">Room intake (B) = room ventilation (A) + compressor FAD</p>	<p>Calculate the resistance of the ventilation duct based on the volume of exhaust from the compressor, and determine a duct shape such that the pressure loss is no more than 20Pa (2mm Aq). The duct construction should be removable in order to facilitate maintenance. Note that noise may leak outside via the ventilation duct aperture. A ventilation fan must be installed in order to transport the exhaust from the dryer.</p> <p style="text-align: center;">Room intake (E) = room ventilation (C) + exhaust (D) + compressor FAD</p>

Model	Heat output (MJ/h)		Room ventilation (A) m ³ /min		Room ventilation (C) m ³ /min		Exhaust (D)(F) m ³ /min	
	compressor	Dryer	compressor	built-in dryer type	compressor	built-in dryer type	compressor(D)	built-in dryer type(F)
i-14015A3-R	54	8	149	171	8	30	80	27
i-14022AX-R	86	11	237	265	12	41	35	22
i-14030A3-R	108	14	299	336	15	53	100	47
i-14037AX-R	142	18	394	442	20	69	75	47
i-14045A3-R	162	22	448	509	23	84	150	47
i-14055A3-R	40+(158)	20	109+(438)	166+(438)	28	85	50+(370)	47
i-14055W3-R	40	20	109	166	6	63	50	47
i-14075A4-R	270	33	750	837	38	129	300	78
i-14075W3-R	54	37	149	252	8	110	50	107
i-14100W2	72	—	199	—	10	—	55	—
i-14150W2	108	—	299	—	15	—	55	—
i-14180W2	130	—	358	—	18	—	110	—
i-14220W2	158	—	438	—	22	—	110	—
u-14015A3-R	54	8	149	171	8	30	80	27
u-14022A3-R	79	14	219	257	11	49	80	31
u-14037A3-R	133	17	368	416	19	66	120	47
u-14055A3-R	40+(158)	20	109+(438)	166+(438)	28	85	50+(370)	47
u-14055W3-R	40	20	109	166	6	63	50	47
u-14075A3-R	54+(216)	37	149+(597)	252+(597)	38	140	50+(370)	107
u-14075W3-R	54	37	149	252	8	110	50	107
ZU08A5	32	—	75	—	4	—	80	—
ZU11A5	47	—	100	—	6	—	90	—

Calculating ventilation requirement

$$Q = \frac{n \times H \times 1000}{1.2 \times \Delta T \times 60}$$

- Q : Required ventilation volume (m³/min)
- H : Heat output per unit (MJ/h)
- n : Number of units
- ΔT : Tolerated temperature rise (t1-t0)
- (t1: tolerated indoor temp. (C); t0: outside temp. (C)) T is generally calculated as 5°C.

⊙ () shows figure of cooler unit
 ⊙ i-14075A4-R is built-in cooler type

Quality of supplied water

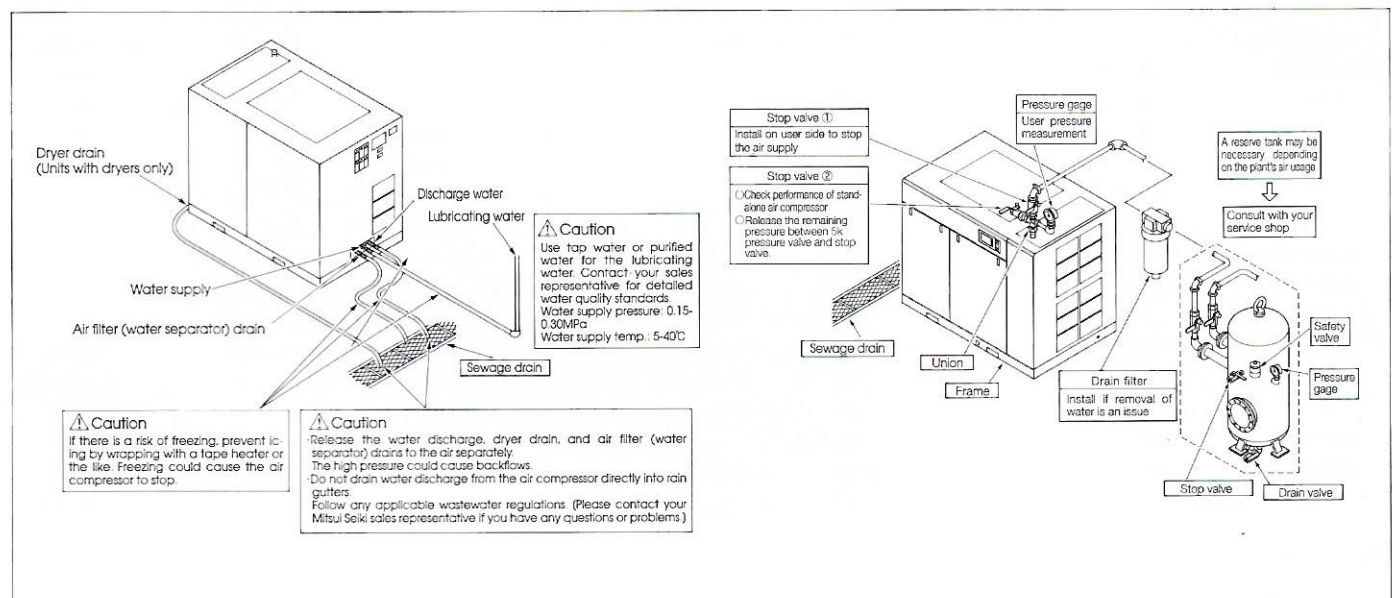
Compressors use water lubricant inject water internally during the compression process, in order to cool, lubricate, and seal the interior of the compression chamber. For this reason, the quality of the water that is supplied to the compressor has a large impact on its performance and service life. Below are preferred water-quality standards for preventing damage to the air compressor, cooler, piping, and the like from corrosion, scaling, and slime.

Indicator	Unit	Standard	Associated with		
			Corrosion	Scaling	Slime
Appearance		Clear and colorless	—	—	—
Turbidity		2 or less	—	—	—
pH (25°C)		6-8	○	○	—
Electrical conductivity (25°C)		≤ 20-120 μ s/cm	○	○	—
Total hardness (CaCO ₃)	mg/ℓ	≤ 50	—	○	—
Iron (Fe)	mg/ℓ	≤ 0.3	○	—	—
M alkalinity (CaCO ₃)	mg/ℓ	≤ 50	—	○	—
Chloride ions (Cl ⁻)	mg/ℓ	≤ 50	○	—	—
Sulfide ions (SO ₄ ²⁻)	mg/ℓ	≤ 50	○	—	—
Nitrate ions (NO ₃ ⁻)	mg/ℓ	≤ 0.3	○	—	—
Silica (SiO ₂)	mg/ℓ	≤ 30	—	○	—
CODMn (O)	mg/ℓ	≤ 2.5	—	—	○
Ammonium ions (NH ₄ ⁺)	mg/ℓ	0	○	—	—

- Do not use ultrapure water.
- Scales are caused by such minerals as calcium, magnesium carbonate, sulfates, phosphates, and silicates. Please inquire with your Mitsui Seiki sales representative if you will be using highly saline water, or if it is not feasible to maintain the water quality described above. We offer water softening systems and other remedies.
- We can also check your water quality. Feel free to contact us about this.
- We recommend RO water. Well water and industrial water do not suffice this standard.

Piping

- Connect pipes with union joints or flange joints for maintenance purpose.
- Make sure that the diameter of the main pipe is at least as large as the discharge outlet, in order to minimize the drop in pressure. Install an approximately 1/100 slope to enable draining from the piping.
- Use a pipe diameter with enough leeway to reduce resistance, in accordance with the installed length of the piping.
- Install stop valves on the compressor discharge outlet, on both the user side and discharge side, in order to facilitate maintenance.
- Install air tanks, filters, and the like as needed, in accordance with the plant's air usage.
- See the installation manual for further details.



Caution When supply water pressure exceeds 0.3MPa or water-hammer phenomenon occur, it may cause air end leaking. In that case, please add water regulator and relief valve.

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Home office plant



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