



CHR SERIES

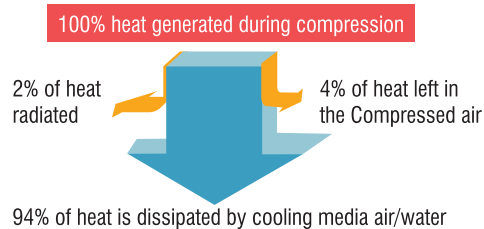
HEAT ENERGY RECOVERY SYSTEMS
FOR OIL LUBRICATED SCREW AIR COMPRESSORS

RECOVER HEAT: REDUCE COSTS

Don't Waste Heat—Turn It Into Savings!!

Compressed air is one of the most essential utilities in industry—powering everything from tools to processes. But it comes at a cost: it's also one of the highest consumers of energy. According to the U.S. Department of Energy, compressed air systems account for over 40% of total electricity consumption in manufacturing facilities.

What many don't realize is that up to 94% of the energy used to produce compressed air is lost as waste heat. That's energy—and money—literally going out the door.



With a Heat Recovery Unit, you can capture this waste heat and repurpose it for useful applications like preheating water, space heating, or process heat. The benefits are compelling:

- **Lower energy bills**
- **Reduced carbon footprint**
- **A more sustainable operation**

As the cost of fuel oil, gas, and other energy sources continues to rise, energy consumption is becoming a major factor in a company's competitiveness. Heat recovery offers a powerful way to improve overall energy efficiency and contribute directly to your bottom line. At a time when **climate change** and **global warming** are reshaping industrial priorities, every step toward energy efficiency matters.

Investing a modest amount in heat recovery isn't just a smart and responsible choice - it also delivers a quick return on investment.

A LARGE MANUFACTURING FACILITY IN INDIA SAVES OVER ₹1 CRORE ANNUALLY WITH FS-CURTIS HEAT RECOVERY SOLUTION

When FS-Curtis assessed a large-scale manufacturing facility in India operating two 150 HP (110 kW) screw compressors at a high 95% loading rate, a significant opportunity for energy optimization was immediately identified—through waste heat recovery.

The facility, with over 3,000 employees spread across two production buildings located 150 meters from the compressor room, relied on diesel-fired heaters to produce hot water for daily use—an approach that was both cost-intensive and inefficient.

FS-Curtis implemented an Energy Recovery System designed to capture 73% of the compressors' input power in the form of reusable heat.

The outcome? The recovered energy now generates over 108 tonnes of hot water at 50°C every day—entirely eliminating the need for diesel-based heating. By replacing the traditional heating method, the plant has reduced diesel consumption by approximately 100 tonnes per year.

At a diesel price of ₹90/litre, this translates to an annual cost saving of over ₹1 crore, along with substantial emissions reduction and a more sustainable operation.

Warm air for space heating

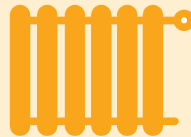
Possible temperature level:
20 – 25°C above the ambient temperature



Heated cooling air is used via a duct for space heating

Warm water for heating purposes

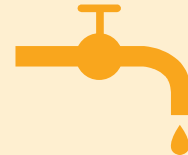
Possible water temperature up to 70°C



Compressor oil gives its heat to the heating water via plates

Heat for industrial process water

Possible water temperature up to 70°C



Even in the case of leaks, safety heat exchanger prevents oil from entering industrial water

up to **94%**
usable thermal energy

- 73% from the oil cooler
- 13% from the aftercooler
- 8% from the electric motor



High energy cost savings possible per compressor (see table on left)

- 6% unusable thermal energy
- 4% in compressed air
 - 2% radiated heat

FS CURTIS
Compressor



Electrical energy

is converted almost entirely to heat



TECHINICAL SPECIFICATIONS

MODEL	Direct Heating	CHR22S	CHR30S	CHR37S	CHR45S	CHR55S	CHR60S	CHR75S	CHR90SC
	Circulation	CHR22SC	CHR30SC	CHR37SC	CHR45SC	CHR55SC	CHR60SC	CHR75SC	CHR90SC
Applicable Compressor type	Oil-injected Screw Air Compressor								
Compressor power	kw	22	30	37	45	55	60	75	90
Heat recovery*	kwh	16	22	23	27.9	34.1	37.2	46.5	55.8
Connection port size	--	DN25	DN25	DN25	DN25	DN32	DN32	DN32	DN32
Hot water production**	m³/h	0.39	0.53	0.39	0.48	0.59	0.64	0.8	0.96
Water intake temperature	°C	10							
Water discharge temperature	°C	60							
Dimension	L mm	900							
	W mm	550							
	H mm	910							

MODEL	Direct Heating	CHR110S	CHR132S	CHR160S	CHR185S	CHR200S
	Circulation	CHR110SC	CHR132SC	CHR160SC	CHR185SC	CHR200SC
Applicable Compressor type	--	--	Oil-injected Screw Air Compressor			
Compressor power	kw	110	132	160	185	200
Heat recovery*	kwh	68.3	81.9	99.3	114.8	124.1
Connection port size	--	DN40	DN40	DN40	DN50	DN50
Hot water production**	m³/h	1.17	1.41	1.71	1.97	2.13
Water intake temperature	°C	10				
Water discharge temperature	°C	60				
Dimension	L mm	900		900		
	W mm	550		550		
	H mm	910		910		

MODEL	Direct Heating	CHR250S	CHR300S	CHR350S	CHR375S	CHR400S
	Circulation	CHR250SC	CHR300SC	CHR350SC	CHR375SC	CHR400SC
Applicable Compressor type	--	--	Oil-injected Screw Air Compressor			
Compressor power	kw	250	300	350	375	400
Heat recovery*	kwh	155.1	186.1	217.2	232.7	248.2
Connection port size	--	DN50	DN65	DN65	DN65	DN65
Hot water production**	m³/h	2.67	3.2	3.73	4	4.27
Water intake temperature	°C	10				
Water discharge temperature	°C	60				
Dimension	L mm	1100	1200			
	W mm	650	650			
	H mm	1100	1200			

Due to continuous engineering improvements, design and specifications are subject to change without prior notice.

* Heat recovery values are derived at 85% average loading.

** Values are at water intake temperature 10°C and discharge temperature 60°C. Maximum water discharge temperature 75 °C



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