Atlas Copco

Heatless Adsorption Compressed Air Dryers

CD series

CD 2-17 / CD 25-100 / CD 110-300 / CD 390-1050

Atlas Copco

Total capability, total responsibility

Right at the heart of your business, Atlas Copco delivers quality compressed air for superior operational capacity. From compressed air generation to point of use, you can choose from our wide range of products to create a complete compressed air system tailored to your specific needs. All Atlas Copco products are engineered to integrate seamlessly, ensuring the highest level of reliability and energy efficiency. As a result, Atlas Copco can take full responsibility for your compressed air infrastructure with a guarantee of best-in-class quality. With a global presence in over 150 countries, we can provide an unrivalled service to maintain and continually improve your compressed air system performance.

Backed by 100 years at the forefront of compressed air, Atlas Copco products offer the finest quality and efficiency. Our goal is to be First in Mind—First in Choice®. That is why Atlas Copco's pursuit of innovation never ceases, driven by the dedication to meet and exceed your demands. Always working with you, we are committed to providing the customized air solution that is the driving force behind your business.

We are committed to your superior productivity through interaction and innovation.

Dry air for demanding applications

Clean and dry compressed air: it is vital to power up your busy production environment. Containing moisture, aerosols and dirt particles, untreated compressed air poses a substantial risk as it can damage your air system and end product.
Incorporating unique, patented technological innovations and extra energy-saving options, Atlas Copco's CD dryers provide you with the clean, dry air you are in need of to expand the life of your equipment and ensure the quality of your end product.

RELIABLE, HIGH-QUALITY AIR

- Unique, worldwide experience in supplying for the most demanding applications.
- Nothing but top end components.
- Robust design (large desiccant overfill, optimum aspect ratio, low air speed).
- Built to perform across a wide range of conditions.
- Tight control and monitoring.
- Based on years of extensive research and continuous development.
- Designed using state-of-the-art tools and facilities.

EXCELLENT COST-EFFICIENCY

While a low pressure drop saves on compressor power, the purge control via Dew Point Dependant switching managed by the Elektronikon® controller ensures the lowest possible energy losses for desiccant regeneration in heatless dryers. Advanced Elektronikon communication and monitoring capabilities increase the operator's efficiency and speed up maintenance. For timer control variants, the Purge Saver system is included as standard.

A TOTAL SOLUTION

Backed by decades of expertise, we have the know-how to offer you total solutions for your specific processes. Atlas Copco is the only company with in-house expertise in building the widest range of complete compressed air solutions from air compression to air treatment, air distribution and worldwide support.

EASY TO INSTALL, EASY TO USE

Thanks to the all-in-one design, CD dryers have a small footprint and require only minimal floor space. Delivered ready for use, CD dryers make installation straightforward and minimize production downtime. As their compact, integrated design eliminates the need for extras, installation costs are reduced to an absolute minimum. What's more, all internal components are easily accessible to facilitate maintenance.

CD 2-17 *CD 25-100* *CD 110-300* *CD 390-1050*

A constant supply of dry air

Atlas Copco CD adsorption dryers eliminate moisture before it can cause any damage. Even the possibility of freezing is non-existent. The CD dryers ensure a reliable process and impeccable end products by delivering absolutely dry air to your compressed air system, with a pressure dewpoint of -40°C / -40°F or even -70°C / -100°F.

A WIDE RANGE OF APPLICATIONS

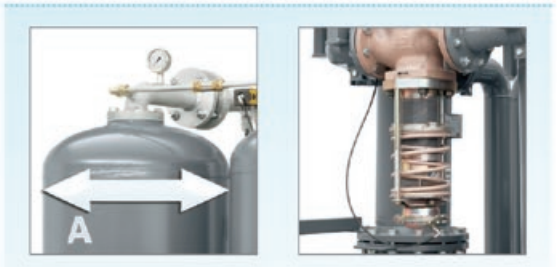
With the CD heatless adsorption dryer series Atlas Copco offers a comprehensive range of products to meet the most diverse application needs. Working in a highly demanding industry such as oil & gas, electronics, food & beverages, pharmaceutics... you will benefit from the highest quality dry air. A total quality air solution for any application, based on Atlas Copco's unique, worldwide experience in supplying for the most demanding applications. Now you have all the tools at hand to eliminate contamination within your process and protect your equipment.

TOP END COMPONENTS

Nothing but top end components are used in all Atlas Copco CD dryers: the most reliable switching valves for their capacity range, the best desiccants, as well as the most comprehensive and reliable control systems and sensors. Each supplier undergoes a strict procedure of application approval and material tests.

BUILT TO LAST

CD dryers deliver excellent performance, even in harsh conditions. By using the best desiccant and thanks to the large, up to 30% desiccant overfill, the service interval is prolonged and desiccant aging is counteracted. This extends the dryer performance band in case the environment should differ from nominal conditions. The wide vessels provide an optimum aspect ratio, resulting in low air speed, longer air-desiccant contact time and increased desiccant performance. The robust mechanical design ensures safe transportation and handling, and reduces mechanical stress on the dryer's components.



The robust design ensures that the complete range operates with total reliability, producing the desired pressure dewpoint even in the most difficult conditions.

TIGHT CONTROL AND MONITORING

To make sure that the air delivered to your applications is of the highest standards, the CD dryer range comes with state-of-the-art control and monitoring systems. Offering excellent reliability, they adjust the dryer's working cycle to the changing working conditions. As soon as the demand for dry air is too high, an immediate warning is generated and communicated, ensuring that your demanding applications benefit from the highest possible protection.

VAST EXPERIENCE AND CONTINUOUS INNOVATION

Thanks to continuous innovations and investments in research and development, Atlas Copco has been known as a world leading provider of compressed air solutions for more than 100 years. Although Atlas Copco is more widely known as a manufacturer of air compressors, also air dryers and purifiers are part of our core business. We are most likely the only company in the world that designs and manufactures such a wide range of complete compressed air solutions in house. By sharing our unique knowledge and experience within our company, we can ensure our customers that all system components – compressors, dryers, filters, condensate separators, drains, air distribution systems and compressed air accessories – are fully compatible and deliver reliable, quality air for any application.

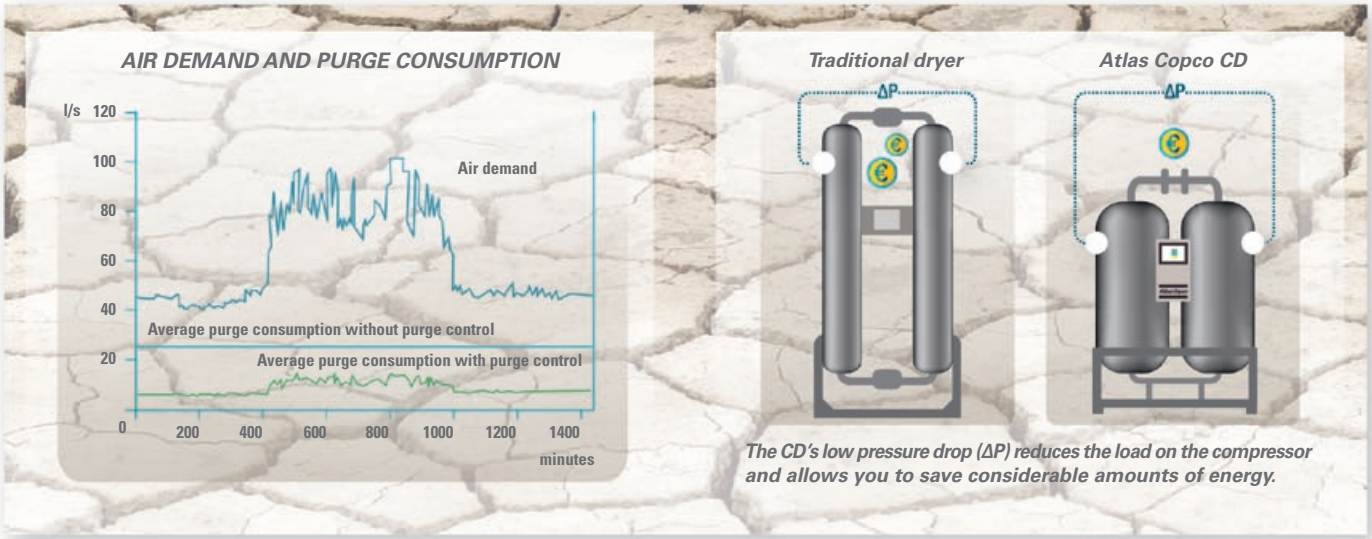
STATE-OF-THE-ART DESIGN AND PRODUCTION

The CD heatless adsorption dryers are designed using state-of-the-art tools and are supported by unique test and research laboratories. Each model is tested in 24/7 full flow 100% water saturated inlet air conditions. Additional tests are performed for the conditions above and below nominal.The dryers are produced on an industry-leading assembly line using the latest production methods and sophisticated tools. The lines are equipped with modern filling stations and computerized testing facilities.

Excellent cost-efficiency

MAXIMUM PERFORMANCE, MINIMUM COST

Coupled with the most advanced control systems, the CD range provides the best quality air at the lowest possible cost. Atlas Copco's dewpoint dependent Purge Control significantly reduces energy costs while ensuring a totally stable and reliable dewpoint. Using the unique Elektronikon controller in combination with a top class PDP sensor, a payback period of less than 6 months is not uncommon. Thanks to the low pressure drop across the system, you can save on compressor power, adding to the overall cost-efficiency of the CD dryer range. To save energy, even Timer Control dryer variants are standard equipped with the Purge Saver function. This allows you to save purge air when there is a compressor load/no-load signal or any other flow/no-flow signal available.



EASY TO INSTALL, EASY TO USE

Thanks to their all-in-one design, CD dryers have a small footprint and require only minimal floor space. Delivered ready for use, CD dryers make installation straightforward and minimize production downtime. As their compact, integrated design eliminates the need for extras, installation costs are reduced to an absolute minimum. Furthermore, all internal components are easily accessible to facilitate maintenance.

CD dryer installed with reversed piping option.

Performance reliability

The complete CD dryer range is based on a common working principle which has been optimized through Atlas Copco's extensive experience.

The dryers consist of two drying towers filled with desiccant material, one of which is in drying service, while the other is being regenerated.

THE DRYING PROCESS

- Wet air from the compressors passes through the inlet filters which remove the oil, and enters the dryer.
- The three way valve assembly then directs the air into the "live" tower, in this example tower A.
- The water adsorbing desiccant contained in tower A removes the water vapor from the air as it passes up the tower. By the time the air leaves the tower it is dried to a typical pressure dewpoint of -40°C / -40°F. Over time the desiccant in the tower will become saturated; if left unchecked this would result in a decline of pressure dewpoint performance.

THE REGENERATION PROCESS

- A small portion of the now dry air is fed into the top of tower B, whilst the remainder leaves the dryer via a filter, which removes any desiccant dust picked up during the drying process.
- The small portion of dry (purge) air that is fed into tower B is used to re-generate the desiccant. During regeneration, tower B is open to the atmosphere, allowing the purge air from tower A to expand and travel through the tower, taking with it the moisture from the desiccant. The silencers on the outlet ensure quiet operation.
- The desiccant regeneration process takes several minutes, after which the control system closes the exhaust valve. From that point on the purge air gradually re-pressurizes the tower back to the regular system pressure.
- Once tower B is fully pressurized the 3-way valve on the bottom of the dryer switches over, so that tower B becomes the live tower drying the air, and tower A becomes the regenerating tower.

CD 2-17

Convenience through versatility

The outstanding installation flexibility of the CD 2-17 ensures that, regardless of the application, no solution is more convenient. Perfect for built-in, point-of-use and regular compressor room installations, these small units offer high performance and require only minimal maintenance.

1. Multi port inlet and outlet
2. Spring loaded cartridges
3. Pre- and after-filter
4. Easy maintenance without disconnecting
5. Valve and silencer block
6. Electronic control panel

RELIABLE, HIGH-QUALITY AIR

- -40°C / -40°F pressure dewpoint (PDP) as standard.
- **Optional** -70°C / -100°F outlet pressure dewpoint (by capacity derating).
- Spring loaded desiccant: less dusting, protection from overflow.
- Top quality valve and silencer block provides failsafe operation.
- Fully anodized tubes to prevent corrosion.
- **Optional** dewpoint sensor to ensure and visualize high air quality.

ENERGY-SAVING AND COST-EFFICIENT

- Very low pressure drop across range.
- Purge Saver function included as standard.
- Adjustable purge to tune down purge air consumption according to actual working conditions.

SPACE-SAVING

- Highly compact, integrated design.
- Pre-filter can be mounted directly on the unit.
- Outlet filters are built into the cartridges.

SIMPLE INSTALLATION & MAINTENANCE

- Unit is delivered tested, pre-commissioned and ready to use.
- Dryer can be installed vertically or horizontally.
- **Optional** floor or wall mounting kit.
- Multi port inlet and outlet ensures easy connection to air system.
- Complete maintenance possible without disconnecting from pipe system.
- Desiccant cartridges with integrated after filter ensure fast and clean maintenance.

FULL CONTROL

- Electronic timer control with purge saver function.
- Fully electronic with complete status annunciation.
- Automatic fault diagnosis with volt free alarm contact.
- Full remote monitoring capability.
- **Optional** remote monitoring cable and software.
- Electrical panel protected thanks to IP65 / NEMA 4.

CD 25-100

Silent, reliable, effective

Offering highly reliable performance, installation flexibility, a small footprint, maintenance friendly desiccant cartridges and a sophisticated electronic control system, the new CD 25-100 range is the perfect choice for traditional, point-of-use and OEM applications.

RELIABLE, HIGH-QUALITY AIR

- Massive desiccant overfill to counteract ageing and improve performance.
- Desiccant is spring loaded: less dusting, protection from overflow.
- **Optional** dewpoint sensor to ensure and visualize high air quality.
- **Optional** -70°C / -100°F outlet pressure dewpoint.
- Base, heads, valves and cartridges are corrosion resistant.

ENERGY-SAVING AND COST-EFFICIENT

- Very low pressure drop.
- **Optional** Purge Control via direct dewpoint measurement.
- Purge saver function included as standard.
- Optimized nozzle set supplied as standard.
- Newly designed, long lifetime cartridges.

SPACE-SAVING

- Compact, integrated, modular design.
- Pre- and after-filters can be mounted directly on the unit to save space.

SIMPLE INSTALLATION & MAINTENANCE

- Unit is delivered tested, pre-commissioned and ready to use.
- Dryer can be installed vertically or horizontally.
- Floor mounting kit supplied as standard.
- **Optional** wall mounting kit (CD 25-35).
- Reversible in- and outlet to ensure easy connection to air system.
- Complete maintenance possible without disconnecting from pipe system.
- Desiccant cartridges ensure fast and clean maintenance.

FULL CONTROL

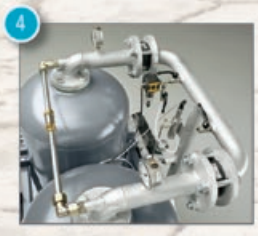
- Each unit is delivered timer control and purge control ready.
- **Optional** Dewpoint Dependant Purge Control.
- **Optional** pneumatic control.
- Easy, fully remote monitoring and full AIR*Connect*™ compatibility.
- Warnings and alarms can be communicated via voltage-free contacts.
- CAN network compatible as standard, communication with other industrial networks optionally available.
- All controls are protected from water and dust thanks to the IP54 cubicle.

CD 110-300

Robust, cost-efficient, user-friendly

The CD 110-300 series is built to perform across a wide range of conditions, providing top quality air for the most demanding applications. Containing nothing but top-end components, and with a control algorithm based on years of experience and know-how, these units offer unprecedented reliability.

1. Wide dessicant vessels
2. Stainless steel switching valve
3. Elektronikon controller
4. Galvanized piping with flanged connections
5. Robust frame with fork lift slots and lifting eyes
6. Integrated pre- and after-filter



RELIABLE, HIGH-QUALITY AIR

- Direct dewpoint measurement (for Elektronikon controlled variants).
- Fully stainless steel inlet 3-way valve.
- Wide vessels ensure a low air speed and a longer contact time.
- The up to 30% desiccant overfill counteracts ageing and improves performance.
- -40°C / -40°F pressure dewpoint as standard.
- **Optional** -70°C / -100°F outlet pressure dewpoint.

ENERGY-SAVING AND COST-EFFICIENT

- Very low pressure drop.
- Reduced purge air losses at dryer partial load (for Elektronikon controlled variants).
- Purge saver function standard included on timer control variants.
- **Optional** optimized purge nozzles.
- Highest up-time thanks to long service intervals.

SPACE-SAVING

- Compact and fully integrated design saves up to 50% of space compared to traditional installation.
- Two inlet and one outlet filters are pre-mounted and piped as standard.

SIMPLE INSTALLATION & MAINTENANCE

- Unit is delivered tested, pre-commissioned and ready to use.
- Flanged piping simplifies maintenance and minimizes the chance of leakage.
- Vessel connecting flanges are integrated into the top and bottom shells, lowering the total unit height.
- Robust frame, including forklift slots and lifting eyes.

FULL CONTROL

- The CD 110-300 can be fitted with either a simple timer control system, or the energy-saving Elektronikon system.
- **Optional** filter alarms connected to the control system.
- Alarm can be communicated via a voltage-free contact.
- **Optional** pneumatic control.
- Easy, fully remote monitoring and full AIR*Connect*™ compatibility.
- CAN network compatible as standard, communication with other industrial networks optionally available.
- All control systems are fitted inside an IP54 cubicle.

CD 390-1050

High performance for critical applications

The CD 390-1050 range of dryers is designed for reliable performance and consistently delivering high quality air for a stable and suitable pressure dewpoint across a range of conditions.

1. Wide dessicant vessels
2. Elektronikon controller
3. Pneumatically operated switching valves
4. Silencers with integrated safety valves
5. Robust frame with fork lift slots and lifting eyes
6. Optional integrated filter pack

RELIABLE, HIGH-QUALITY AIR

- Direct dewpoint measurement via a dewpoint sensor for setting and control.
- Up to 30% extra desiccant overfill to ensure long lifetime and stable performance in difficult conditions.
- Wide vessels ensure long contact time, low air speeds and low pressure drop.
- -40°C / -40°F pressure dewpoint as standard.
- **Optional** -70°C / -100°C outlet pressure dewpoint.
- Highly efficient silencers with integrated safety valve.
- Valves operated by pneumatic actuators.
- **Optional** sonic nozzle (to protect the dryer from excess volumetric flow in a large air net).

ENERGY-SAVING AND COST-EFFICIENT

- Purge control with Dewpoint Dependant Switching saves energy by optimizing purge air requirements based on inlet conditions.
- Bigger vessel diameter results in low pressure drop.
- Pipe sizing is optimized to ensure a low pressure drop, resulting in energy savings.

SPACE-SAVING

- Small footprint makes the dryer easier to place, either in the compressor house or in the workplace.
- **Optional** integrated filters (with differential pressure readout in Elektronikon)*, saving up to 50% space compared to conventional installations.

SIMPLE INSTALLATION & MAINTENANCE

- Forklift slots and lifting eyes enable easy installation.
- Skidded version with crash frame for mobile applications (available on CD 780).

FULL CONTROL

- Purge control with microprocessor based control (Elektronikon).
- Electronic timer control (regulated vessel switching).
- Pneumatic control: the dryer is completely controlled by a pneumatic timer without any electricity, making it suitable for hazardous areas and mobile applications.
- **Optional** remote control and monitoring possibilities.
- Differential pressure alarm*.

** Only for units equipped with Elektronikon.*

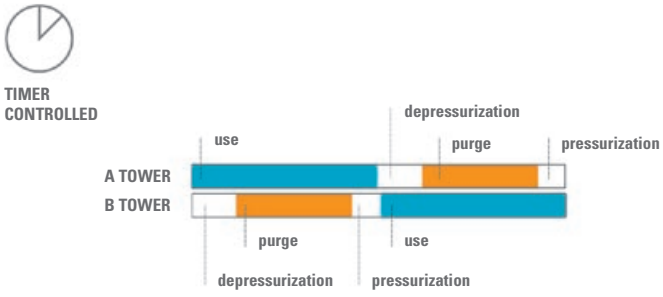
Peace of mind

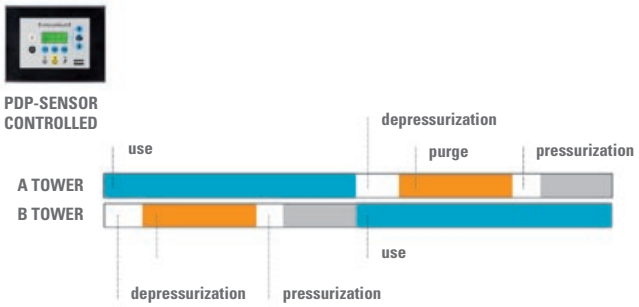
SIMPLE RELIABILITY – TIMER CONTROL SYSTEM

The drying and regenerating process is controlled by a pre-set timer, which fixes the drying, regeneration and re-pressurization times. To eliminate purge loss when the compressor is unloaded, all timer based controllers from Atlas Copco include a Purge Saver function that causes the dryer to "pause" and therefore consume no purge air whilst the compressor is unloaded.

ELEKTRONIKON – THE SMART INVESTMENT

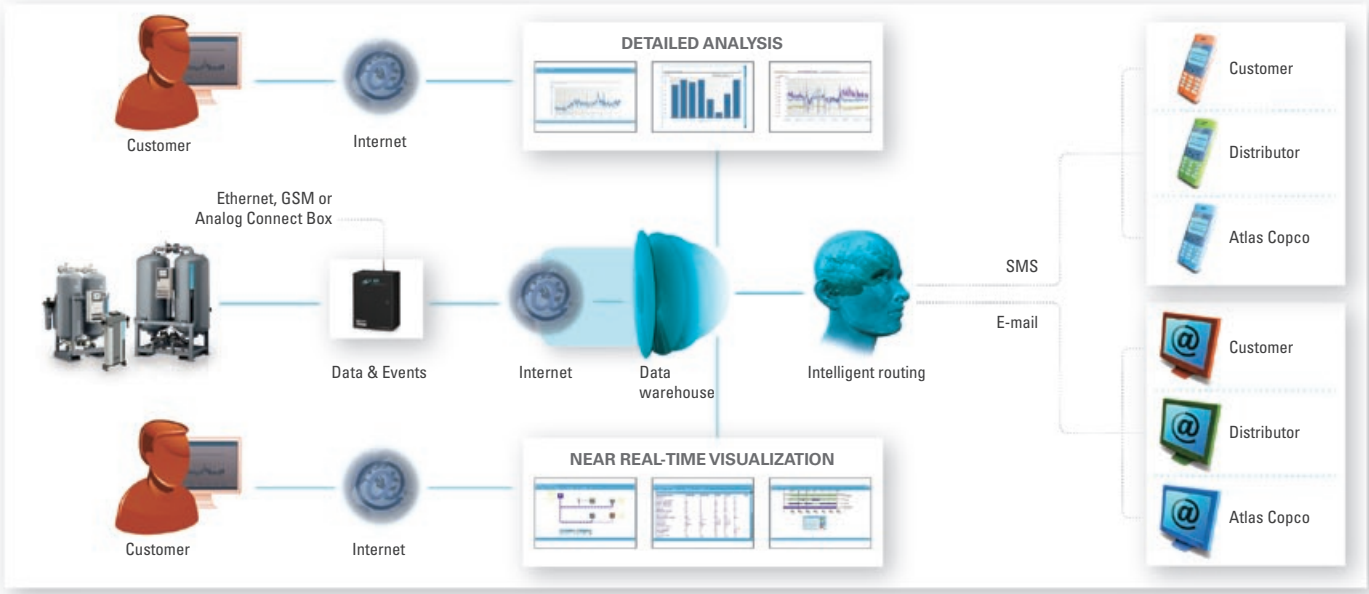
Atlas Copco's patented Elektronikon is an advanced microprocessor based, real-time operating system that allows for comprehensive control and monitoring through a clear and simple user interface. Such a close monitoring enables immediate identification of any fault in the dryer's operation, protecting your sensitive applications.





THE ULTIMATE IN REMOTE MONITORING

With AIR*Connect*™, Atlas Copco offers you a sophisticated modular package for advanced remote monitoring, complete analysis and accurate management. Fully customizable to meet your specific needs, this solution – made up of four different levels of functionality – stands for exceptional convenience and absolute peace of mind within your production environment.



A TOTAL SOLUTION

With the CD series, Atlas Copco does not just offer the most reliable and efficient heatless adsorption dryers. From compressors and filter kits to a complete piping installation, Atlas Copco can take responsibility of your entire compressed air system to provide you with best-in-class air. Choose from a wide range of Atlas Copco after sales products and services that will have your CD performing at its best for years to come. Qualified Atlas Copco support is available in over 150 countries.

Technical specifications

CD DRYER TYPE	Inlet capacity 11 bar variant at 7 bar(g)/102 psi(g)			Inlet capacity 16 bar variant at 12.5 bar(g)/181 psi(g)			Pressure drop	Inlet/outlet connections	Included filtration		
									Pre-filters		After-filter
	l/s	m³/m	cfm	l/s	m³/m	cfm	bar	50 Hz: G 60 Hz: NPT	1 micron 0.1 ppm	0.01 micron 0.01 ppm	1 micron
CD 2	2	0,1	4,2	3	0,2	7,2	0.05	⅜"	N/A	PD9	Integrated
CD 3	3	0,2	6,4	5	0,3	10,7	0.06	⅜"	N/A	PD9	Integrated
CD 5	5	0,3	10,6	8	0,5	17,9	0.07	⅜"	N/A	PD9	Integrated
CD 7	7	0,4	14,8	12	0,7	25,0	0.12	⅜"	N/A	PD9	Integrated
CD 12	12	0,7	25,4	20	1,2	42,9	0.23	⅜"	N/A	PD17	Integrated
CD 17	17	1,0	36,0	29	1,7	60,8	0.33	½"	N/A	PD17	Integrated
CD 25	25	1,5	53,0	42	2,5	89,4	0.06	½"	N/A	PD32	DDp32
CD 30	30	1,8	63,6	51	3,0	107	0.85	½"	N/A	PD32	DDp32
CD 35	35	2,1	74,2	59	3,5	125	0.95	½"	N/A	PD32	DDp32
CD 50	50	3,0	106	84	5,1	179	0.85	1"	N/A	PD60	DDp60
CD 60	60	3,6	127	101	6,1	215	0.12	1"	N/A	PD60	DDp60
CD 70	70	4,2	148	118	7,1	250	0.16	1"	N/A	PD60	DDp60
CD 80	80	4,8	170	135	8,1	286	0.12	1½"	N/A	PD120	DDp120
CD 100	100	6,0	212	169	10,1	358	0.17	1½"	N/A	PD120	DDp120
CD 110	110	6,6	233	132	7,9	280	0.15	1½"	DD120	PD120	DDp120
CD 150	150	9,0	318	180	10,8	381	0.16	1½"	DD150	PD150	DDp150
CD 185	185	11,1	392	222	13,3	470	0.20	1½"	DD175	PD175	DDp175
CD 250	250	15,0	530	300	18,0	636	0.14	2"	DD280	PD280	DDp280
CD 300	300	18,0	636	360	21,6	763	0.19	2"	DD280	PD280	DDp280
CD 390	390	23,4	826	N/A	N/A	N/A	0.15	DN80	N/A	PD390	DDp390
CD 520	520	31,2	1102	N/A	N/A	N/A	0.15	DN80	N/A	PD520	DDp520
CD 780	780	46,8	1653	N/A	N/A	N/A	0.10	DN100	N/A	PD780	DDp780
CD 1050*	1050	63,0	2225	N/A	N/A	N/A	0.07	DN125	N/A	PD1050	DDp1050
									Optional		

CD DRYER TYPE	Dimensions (L x W x H)						Weight	
	mm	mm	mm	inch	inch	inch	kg	lbs
CD 2	92	281	445	3.6	11.1	17.5	13	29
CD 3	92	281	504	3.6	11.1	19.8	14	31
CD 5	92	281	635	3.6	11.1	25.0	17	38
CD 7	92	281	815	3.6	11.1	32.1	20	44
CD 12	92	281	1205	3.6	11.1	47.4	26	58
CD 17	92	281	1598	3.6	11.1	62.9	34	75
CD 25	550	165	1191	21.7	6.5	46.9	50	111
CD 30	550	165	1191	21.7	6.5	46.9	50	111
CD 35	550	165	1436	21.7	6.5	56.5	60	133
CD 50	550	327	1191	21.7	12.9	46.9	100	222
CD 60	550	327	1191	21.7	12.9	46.9	100	222
CD 70	550	327	1436	21.7	12.9	56.5	120	266
CD 80	550	489	1191	21.7	19.3	46.9	150	333
CD 100	550	489	1436	21.7	19.3	56.5	180	400
CD 110	950	728	1695	37.4	28.7	66.7	340	755
CD 150	1089	848	1731	42.9	33.4	68.1	415	921
CD 185	1089	848	1731	42.9	33.4	68.1	445	988
CD 250	1106	960	1816	43.5	37.8	71.5	600	1332
CD 300	1173	1116	1854	46.2	43.9	73.0	650	1443
CD 390	1337	770	2256	52.6	30.3	88.8	800	1776
CD 520	1593	920	2300	62.7	36.2	90.6	1100	2442
CD 780	1876	1474	2300	73.9	58.0	90.6	1400	3108
CD 1050	2250	1283	2687	88.6	50.5	105.8	2000	4440

* *The CE version of the CD 1050 has a maximum working pressure of 9 bar(g)/130 psi(g); the ASME version has a working pressure of 11 bar(g)/160 psi(g)*

Reference conditions:

Compresser air inlet temperature:
35°C/100°F

Inlet relative humidity:
100%

Dryer inlet pressure for 11 bar variants, after inlet filtration:
7 bar(g)/102 psi(g)

Dryer inlet pressure for 16 bar variants, after inlet filtration:
12.5 bar(g)/181 psi(g)

To adjust the performance of each dryer for different inlet conditions, use the correction factors below:

Pressure Dewpoint Correction (Kd):

Pressure Dewpoint	°C	-20	-40	-70
	°F	-4	-40	-100
CD 2-17	Kd	1	1	0.7
CD 25-1050	Kd	1	1	0.8

Inlet temperature correction factor (Kt):

Inlet temperature	°C	25	30	35	40	45	50
	°F	77	86	95	104	113	122
CD 2-100	Kt	1	1	1	0.84	0.67	0.55
CD 110-1050	Kt	1	1	1	0.84	0.71	0.55

Inlet pressure correction factor (Kp):

	11 bar(g)/160 psi(g) variants								
Inlet Pressure	bar(g)	4	5	6	7	8	9	10	11
	psi(g)	58	73	87	102	116	131	145	160
CD 2-17	Kp	0.62	0.75	0.87	1	1.12	1.25	1.37	1.5
CD 25-1050	Kp	0.47	0.68	0.84	1	1.1	1.2	1.3	1.38

	16 bar(g)/232 psi(g) variants					
Inlet Pressure	bar(g)	12.5	13	14	15	16
	psi(g)	181	189	203	218	232
CD 2-1050	Kp	1	1.04	1.11	1.19	1.24

In order to be First in Mind—First in Choice® for all your compressed air needs, Atlas Copco delivers the products and services that help increase your business' efficiency and profitability.

Atlas Copco's pursuit of innovation never ceases, driven by your need for reliability and efficiency. Always working with you, we are committed to providing you the customized quality air solution that is the driving force behind your business.

Never use compressed air as breathing air without prior purification in accordance with local legislation and standards.

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