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Selecting Replacement Filters for Aging Mobile Home Furnaces

Importance of Selecting the Right Units for Upgrades

Understanding the importance of furnace filters is crucial, especially when selecting replacement filters for aging mobile home furnaces. These filters play a vital role in maintaining indoor air quality and ensuring the efficient operation of your heating system. Drainage systems prevent moisture buildup around mobile home HVAC units **best hvac system for mobile home** pump. As mobile homes often have distinctive HVAC setups compared to traditional houses, choosing the right furnace filter becomes even more essential.

Aging mobile home furnaces can be sensitive due to years of accumulated wear and tear. Furnace filters act as the first line of defense by trapping dust, pollen, and other airborne particles before they enter the furnace system. This not only helps in maintaining cleaner air but also prevents these particles from clogging up the internal components of your furnace. A clogged or inefficient filter can cause several issues, such as reduced airflow, increased energy consumption, and even potential damage to the furnace itself.

When selecting replacement filters for an older mobile home furnace, one must consider several factors to ensure optimal performance and longevity. The first consideration is the size and type of filter that fits your specific furnace model. Unlike newer models that may use standardized sizes, older furnaces might require custom-sized filters or those with unique specifications.

Another critical factor is the MERV (Minimum Efficiency Reporting Value) rating of the filter. A higher MERV rating signifies a higher capacity to trap smaller particles; however, it can also restrict airflow if not suitable for your particular system. For aging furnaces in mobile homes, a balance between filtration efficiency and airflow must be maintained to prevent undue strain on an already old system.

Additionally, regular maintenance checks are essential when dealing with aging systems. Replacing filters at recommended intervals-generally every three months-will help ensure that your furnace operates efficiently throughout its lifespan. It's also beneficial to inspect for any signs of wear or damage during each filter change.

In conclusion, understanding the importance of selecting appropriate replacement filters for aging mobile home furnaces cannot be overstated. Properly selected and maintained filters contribute significantly to improved indoor air quality and prolonging the life of your heating system. By paying attention to size compatibility, MERV ratings, and regular maintenance schedules, homeowners can ensure their old furnaces continue running smoothly through many more seasons while providing clean air for all occupants within their homes.

As mobile home furnaces age, their efficiency and effectiveness can begin to wane, often signaling the need for maintenance or replacement of certain components. One critical aspect of maintaining an aging furnace is selecting the appropriate replacement filters. Understanding how to identify signs of aging in your furnace can help in making informed decisions about filter selection, ensuring the continued comfort and safety of your mobile home.

Aging furnaces often exhibit several telltale signs that indicate they are not functioning optimally. These signs include inconsistent heating, unusual noises, increased energy bills, and frequent cycling on and off. Inconsistent heating may suggest that the furnace is struggling to distribute warm air evenly throughout the home. Unusual noises such as banging or rattling can indicate mechanical issues within the system. Meanwhile, a sudden spike in energy bills might point to reduced efficiency.

Given these signs, it becomes crucial to focus on choosing the right replacement filters for an aging mobile home furnace. Filters play a significant role in maintaining indoor air quality and ensuring efficient furnace operation by trapping dust, allergens, and other particles. For older furnaces, which may already be working harder than new models, selecting a high-quality filter is even more important.

When selecting replacement filters for an aging furnace, consider several factors: size compatibility, MERV rating (Minimum Efficiency Reporting Value), and filter type. Proper size compatibility ensures that there are no gaps through which unfiltered air could pass. The MERV rating indicates a filter's ability to capture particles; however, it's essential to choose a rating that balances filtration with airflow-higher ratings provide better filtration but may restrict airflow in older systems.

There are various types of filters available including fiberglass, pleated paper or polyester, electrostatic washable filters, and high-efficiency particulate air (HEPA) filters. For aging furnaces particularly sensitive to airflow restrictions due to wear and tear over time, pleated paper or polyester filters offer a good compromise between filtration efficiency and maintaining proper airflow.

Finally, regular maintenance checks by a professional technician can help prolong the life of an aging mobile home furnace by addressing any mechanical issues early on and ensuring that you're using the most suitable filters for your specific system needs.

In conclusion, recognizing when your mobile home furnace shows signs of aging allows you to take proactive steps towards keeping it running efficiently for as long as possible. By carefully selecting replacement filters based on compatibility with your current system's condition while considering necessary filtration levels versus potential airflow restrictions-you contribute significantly not only towards extending its lifespan but also enhancing overall indoor comfort within your living space.

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Energy Efficiency and Environmental Impact

Selecting replacement filters for aging mobile home furnaces is a critical task that ensures the continued efficiency and longevity of the heating system. As mobile homes often have unique heating configurations, understanding the key factors in choosing the right filter can vastly improve air quality and furnace performance. Here, we delve into several considerations that should guide your selection process.

Firstly, it's essential to understand the size and specifications of your existing furnace filter. Furnaces in mobile homes may differ from those in traditional houses due to space constraints and design variations. The dimensions and type of filter required are typically indicated on the old filter or in the furnace manual. Ensuring a proper fit is crucial; an ill-fitting filter can allow dust and debris to bypass filtration, compromising both air quality and furnace efficiency.

Next, consider the MERV (Minimum Efficiency Reporting Value) rating of potential replacement filters. MERV ratings indicate a filter's ability to capture particles of varying sizes. For most mobile home furnaces, a filter with a MERV rating between 8 and 11 is adequate for capturing common contaminants like dust, pollen, mold spores, and pet dander without overly restricting airflow. However, if anyone in your household suffers from allergies or respiratory issues, you might opt for a higher-rated filter that can trap finer particulates.

The material composition of the filter also plays a significant role in its effectiveness and durability. Fiberglass filters are inexpensive but generally less effective at trapping smaller

particles. Pleated filters made from polyester or cotton offer improved filtration capabilities due to their larger surface area but might be more costly upfront. Electrostatic filters, which use static electricity to attract particles, provide another reliable option for enhancing indoor air quality.

Frequency of replacement is another factor worth considering when selecting filters. Aging furnaces might struggle with airflow if filters are not replaced regularly; thus, opting for reusable washable filters could offer long-term savings and environmental benefits by reducing waste. However, these require diligent maintenance to ensure optimal performance.

Finally, it's prudent to assess any specific needs your household may have regarding air quality or energy efficiency preferences. If your aim is to reduce utility bills through enhanced energy efficiency, investing in high-quality HEPA filters could prove beneficial despite their higher initial cost-by keeping your furnace running smoothly without undue strain.

In conclusion, selecting replacement filters for aging mobile home furnaces involves balancing various factors including size compatibility, filtration efficiency as denoted by MERV ratings, material composition choices like fiberglass versus pleated designs, frequency of replacement options such as disposable versus washable models-even specific household health considerations or energy-saving goals must all be thoughtfully weighed during this decision-making process. By taking these elements into account comprehensively rather than singularly focusing on price alone will better position homeowners towards making informed decisions that best support both their immediate comfort needs alongside longer-term operational efficacy within their unique living environments-ensuring peace-of-mind knowing they've invested wisely towards safeguarding not only themselves but also those cherished ones sharing these spaces daily throughout seasonal transitions ahead!

Cost-Effectiveness and Budget Considerations

When it comes to maintaining a comfortable and healthy living environment in mobile homes, selecting the right replacement filters for aging furnaces is crucial. Mobile homes, due to their unique construction and often compact space, require special attention when it comes to heating systems. Aging furnaces, in particular, need filters that not only fit the system but also

enhance its efficiency and longevity. This essay explores the different types of replacement filters suitable for mobile homes, offering guidance to homeowners seeking to make informed decisions.

The first type of filter commonly used in mobile home furnaces is the fiberglass filter. These are typically the most affordable option and are known for their ability to capture larger particles such as dust and lint. Fiberglass filters are disposable and should be replaced every 30 days or so, depending on usage and environmental factors. While they are cost-effective and readily available, they may not be the best choice if you have allergies or respiratory concerns, as they do not effectively trap smaller particles like pollen or pet dander.

Pleated filters offer a step up from fiberglass in terms of filtration capability. Made from cotton or polyester fabric folded into pleats, these filters provide a greater surface area for capturing airborne particles. This design enables them to trap smaller contaminants more effectively than fiberglass filters. Pleated filters can last up to three months before needing replacement, making them a convenient option for those looking for better air quality without frequent maintenance.

Electrostatic filters represent another category suitable for mobile home furnaces. These high-performance filters use self-charging fibers that attract and capture particles as air passes through them. Electrostatic filters can be either disposable or washable; reusable versions require regular cleaning but offer long-term cost savings. They are particularly effective at trapping allergens such as mold spores and pet dander, making them ideal for households with allergy sufferers.

High-efficiency particulate air (HEPA) filters are renowned for their superior filtration capabilities, capturing up to 99.97% of airborne pollutants down to 0.3 microns in size. While HEPA filters provide outstanding air quality improvements, they may not always be compatible with all mobile home furnace systems due to their dense material causing reduced airflow if the system isn't designed for such resistance. If your furnace can accommodate a HEPA filter without hindering performance, this could be an excellent option for ensuring clean indoor air.

Finally, activated carbon filters add an additional layer of filtration by using charcoal-treated materials that absorb odors and volatile organic compounds (VOCs). These are particularly beneficial in removing smoke odors or chemical fumes from household products that might circulate through your HVAC system.

In conclusion, selecting the appropriate replacement filter for aging mobile home furnaces involves balancing cost considerations with health benefits and system compatibility. Homeowners must evaluate their specific needs-such as budget constraints or allergy sensitivities-and choose between options like fiberglass for basic filtering needs or pleated/electrostatic/HEPA/activated carbon models for more comprehensive air purification solutions. By understanding these options' characteristics and limitations, individuals can ensure that their mobile home's heating system operates efficiently while maintaining optimal indoor air quality throughout its service life.

Sizing and Compatibility with Mobile Home Structures

When it comes to maintaining an aging mobile home furnace, one of the most crucial tasks is selecting and installing replacement filters. Proper filtration not only ensures efficient heating but also contributes significantly to the air quality within your living space. With a plethora of options available in the market, choosing the right filter might seem daunting. However, with a little guidance, you can easily navigate this process and ensure that your furnace operates at peak performance.

Firstly, it's important to identify the correct size of the filter for your furnace. Mobile home furnaces often have unique dimensions compared to standard home furnaces, so it's vital to consult your furnace's manual or check existing filters for size specifications before making a purchase. Using the wrong size filter can compromise airflow and reduce efficiency.

Once you've secured the appropriate filter, installation becomes your primary focus. Begin by turning off your furnace entirely-safety should always be prioritized during maintenance activities. Locate the air return vent where the filter is housed; this is usually near where air enters the system. Carefully remove any panel or cover that conceals the old filter.

Upon revealing the old filter, take note of its orientation before removing it from its slot. Most filters will have arrows printed on their sides indicating airflow direction-this is essential

information that ensures proper installation of your new filter. Gently slide out the used filter and dispose of it according to local waste management guidelines.

Before inserting the new filter, take a moment to clean out any visible dust or debris from within the vent area using a soft cloth or vacuum attachment. This simple step can enhance airflow and improve overall system efficiency.

With cleanliness ensured, orientate your new filter correctly by aligning it according to airflow arrows noted earlier. Slide it gently into place without forcing; if resistance is encountered, re-check sizing and alignment before proceeding further.

Finally, reattach any covers or panels securely over vents once installation is complete. Turn on your furnace again and monitor its operation for unusual noises which might indicate improper installation.

In conclusion, while selecting replacement filters for aging mobile home furnaces may initially appear complex due to varied sizes and types available today-understanding how these components interact with each other simplifies decision-making considerably! By following these straightforward steps outlined above when installing replacements correctly every time-you'll enjoy cleaner indoor environments along with reduced energy costs associated directly through optimized heater function year-round!

Installation Challenges and Solutions

When it comes to maintaining an aging mobile home furnace, selecting the right replacement filter is a critical step in ensuring both longevity and efficiency. Mobile homes often come with unique heating challenges due to their smaller spaces and different construction materials compared to traditional houses. Therefore, understanding the nuances of filter selection can significantly prolong the life of your furnace while also improving air quality.

First and foremost, it's important to identify the appropriate size and type of filter for your specific furnace model. Consult the furnace manual or look for markings on your old filter to determine this information. Filters that are too large or too small can lead to inefficient operation or even damage the system. For mobile homes, where space is at a premium, using a correctly fitted filter is essential for unobstructed airflow.

Next, consider the MERV (Minimum Efficiency Reporting Value) rating when choosing a replacement filter. While higher MERV ratings indicate better filtration capabilities by trapping smaller particles, they can also restrict airflow if not compatible with your system. For older mobile home furnaces, a moderate MERV rating-typically between 8 and 11-balances adequate air purification without overburdening the unit.

Moreover, it's vital to assess the material of the new filter. Fiberglass filters are cost-effective and offer basic protection but may not be suitable for those with allergies or respiratory issues since they capture fewer particulates. Pleated filters made from polyester or cotton provide more efficient filtration and longer usage periods before needing replacement.

Regular maintenance is another key practice in prolonging furnace life. Regardless of how high quality a filter might be, failure to replace it regularly will eventually lead to reduced efficiency and potential system breakdowns. In general, check filters monthly and replace them every three months-or sooner if you notice excessive dirt accumulation.

Additionally, keep in mind that aging furnaces may benefit from professional inspection at least once annually. An expert can evaluate whether your chosen filters are performing optimally within your specific system setup and make recommendations accordingly.

In conclusion, selecting replacement filters for aging mobile home furnaces involves careful consideration of size, MERV rating, material composition, and regular maintenance practices. By taking these factors into account, homeowners can enhance their furnace's performance while extending its operational life span-resulting in improved comfort levels within their living spaces as well as potential energy savings over time.

About Refrigerant

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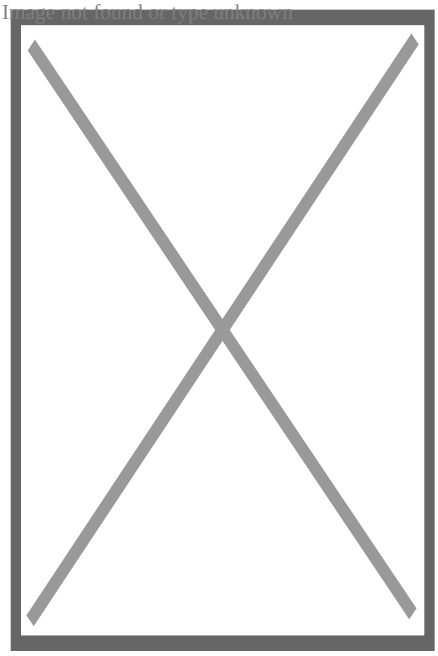

A DuPont R-134a refrigerant

A **refrigerant** is a working fluid used in cooling, heating or reverse cooling and heating of air conditioning systems and heat pumps where they undergo a repeated phase transition from a liquid to a gas and back again. Refrigerants are heavily regulated because of their toxicity and flammability[1] and the contribution of CFC and HCFC refrigerants to ozone depletion[2] and that of HFC refrigerants to climate change.[3]

Refrigerants are used in a direct expansion (DX- Direct Expansion) system (circulating system)to transfer energy from one environment to another, typically from inside a building to outside (or vice versa) commonly known as an air conditioner cooling only or cooling & heating reverse DX system or heat pump a heating only DX cycle. Refrigerants can carry 10 times more energy per kg than water, and 50 times more than air.

Refrigerants are controlled substances and classified by International safety regulations ISO 817/5149, AHRAE 34/15 & BS EN 378 due to high pressures (700–1,000 kPa (100–150 psi)), extreme temperatures (?50 °C [?58 °F] to over 100 °C [212 °F]), flammability (A1 class non-flammable, A2/A2L class flammable and A3 class extremely flammable/explosive) and toxicity (B1-low, B2-medium & B3-high). The

regulations relate to situations when these refrigerants are released into the atmosphere in the event of an accidental leak not while circulated.

Refrigerants (controlled substances) must only be handled by qualified/certified engineers for the relevant classes (in the UK, C&G 2079 for A1-class and C&G 6187-2 for A2/A2L & A3-class refrigerants).

Refrigerants (A1 class only) Due to their non-flammability, A1 class non-flammability, non-explosivity, and non-toxicity, non-explosivity they have been used in open systems (consumed when used) like fire extinguishers, inhalers, computer rooms fire extinguishing and insulation, etc.) since 1928.

History

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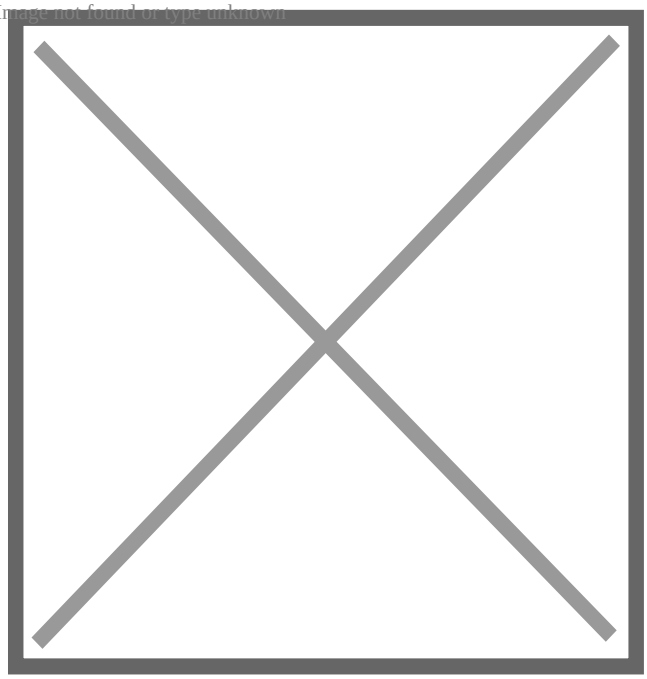

The observed stabilization of HCFC concentrations (left graphs) and the growth of HFCs (right graphs) in earth's atmosphere.

The first air conditioners and refrigerators employed toxic or flammable gases, such as ammonia, sulfur dioxide, methyl chloride, or propane, that could result in fatal accidents when they leaked.[4]

In 1928 Thomas Midgley Jr. created the first non-flammable, non-toxic chlorofluorocarbon gas, *Freon* (R-12). The name is a trademark name owned by DuPont (now Chemours) for any chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC), or hydrofluorocarbon (HFC) refrigerant. Following the discovery of better

synthesis methods, CFCs such as R-11,[5] R-12,[6] R-123[5] and R-502[7] dominated the market.

Phasing out of CFCs

[edit]
See also: Montreal Protocol

In the mid-1970s, scientists discovered that CFCs were causing major damage to the ozone layer that protects the earth from ultraviolet radiation, and to the ozone holes over polar regions.[8][9] This led to the signing of the Montreal Protocol in 1987 which aimed to phase out CFCs and HCFC[10] but did not address the contributions that HFCs made to climate change. The adoption of HCFCs such as R-22,[11][12][13] and R-123[5] was accelerated and so were used in most U.S. homes in air conditioners and in chillers[14] from the 1980s as they have a dramatically lower Ozone Depletion Potential (ODP) than CFCs, but their ODP was still not zero which led to their eventual phase-out.

Hydrofluorocarbons (HFCs) such as R-134a,[15][16] R-407A,[17] R-407C,[18] R-404A,[7] R-410A[19] (a 50/50 blend of R-125/R-32) and R-507[20][21] were promoted as replacements for CFCs and HCFCs in the 1990s and 2000s. HFCs were not ozone-depleting but did have global warming potentials (GWPs) thousands of times greater than CO_2 with atmospheric lifetimes that can extend for decades. This in turn, starting from the 2010s, led to the adoption in new equipment of Hydrocarbon and HFO (hydrofluoroolefin) refrigerants R-32,[22] R-290,[23] R-600a,[23] R-454B,[24] R-1234yf,[25][26] R-514A,[27] R-744 (CO_2),[28] R-1234ze(E)[29] and R-1233zd(E),[30] which have both an ODP of zero and a lower GWP. Hydrocarbons and CO_2 are sometimes called natural refrigerants because they can be found in nature.

The environmental organization Greenpeace provided funding to a former East German refrigerator company to research alternative ozone- and climate-safe refrigerants in 1992. The company developed a hydrocarbon mixture of propane and isobutane, or pure isobutane,[31] called "Greenfreeze", but as a condition of the contract with Greenpeace could not patent the technology, which led to widespread adoption by other firms.[32][33][34] Policy and political influence by corporate executives resisted change however,[35][36] citing the flammability and explosive properties of the refrigerants,[37] and DuPont together with other companies blocked them in the U.S. with the U.S. EPA.[38][39]

Beginning on 14 November 1994, the U.S. Environmental Protection Agency restricted the sale, possession and use of refrigerants to only licensed technicians, per rules under sections 608 and 609 of the Clean Air Act.[40] In 1995, Germany made CFC refrigerators illegal.[41]

In 1996 Eurammon, a European non-profit initiative for natural refrigerants, was established and comprises European companies, institutions, and industry experts.[42][43][44]

In 1997, FCs and HFCs were included in the Kyoto Protocol to the Framework Convention on Climate Change.

In 2000 in the UK, the Ozone Regulations[45] came into force which banned the use of ozone-depleting HCFC refrigerants such as R22 in new systems. The Regulation banned the use of R22 as a "top-up" fluid for maintenance from 2010 for virgin fluid and from 2015 for recycled fluid.[*citation needed*]

Addressing greenhouse gases

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With growing interest in natural refrigerants as alternatives to synthetic refrigerants such as CFCs, HCFCs and HFCs, in 2004, Greenpeace worked with multinational corporations like Coca-Cola and Unilever, and later Pepsico and others, to create a corporate coalition called Refrigerants Naturally!.[41][46] Four years later, Ben & Jerry's of Unilever and General Electric began to take steps to support production and use in the U.S.[47] It is estimated that almost 75 percent of the refrigeration and air conditioning sector has the potential to be converted to natural refrigerants.[48]

In 2006, the EU adopted a Regulation on fluorinated greenhouse gases (FCs and HFCs) to encourage to transition to natural refrigerants (such as hydrocarbons). It was reported in 2010 that some refrigerants are being used as recreational drugs, leading to an extremely dangerous phenomenon known as inhalant abuse.[49]

From 2011 the European Union started to phase out refrigerants with a global warming potential (GWP) of more than 150 in automotive air conditioning (GWP = 100-year warming potential of one kilogram of a gas relative to one kilogram of CO_2) such as the refrigerant HFC-134a (known as R-134a in North America) which has a GWP of 1526.[50] In the same year the EPA decided in favour of the ozone- and climate-safe refrigerant for U.S. manufacture.[32][51][52]

A 2018 study by the nonprofit organization "Drawdown" put proper refrigerant management and disposal at the very top of the list of climate impact solutions, with an impact equivalent to eliminating over 17 years of US carbon dioxide emissions.[53]

In 2019 it was estimated that CFCs, HCFCs, and HFCs were responsible for about 10% of direct radiative forcing from all long-lived anthropogenic greenhouse gases.[54] and in the same year the UNEP published new voluntary guidelines,[55] however

many countries have not yet ratified the Kigali Amendment.

From early 2020 HFCs (including R-404A, R-134a and R-410A) are being superseded: Residential air-conditioning systems and heat pumps are increasingly using R-32. This still has a GWP of more than 600. Progressive devices use refrigerants with almost no climate impact, namely R-290 (propane), R-600a (isobutane) or R-1234yf (less flammable, in cars). In commercial refrigeration also CO_2 (R-744) can be used.

Requirements and desirable properties

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A refrigerant needs to have: a boiling point that is somewhat below the target temperature (although boiling point can be adjusted by adjusting the pressure appropriately), a high heat of vaporization, a moderate density in liquid form, a relatively high density in gaseous form (which can also be adjusted by setting pressure appropriately), and a high critical temperature. Working pressures should ideally be containable by copper tubing, a commonly available material. Extremely high pressures should be avoided.[*citation needed*]

The ideal refrigerant would be: non-corrosive, non-toxic, non-flammable, with no ozone depletion and global warming potential. It should preferably be natural with well-studied and low environmental impact. Newer refrigerants address the issue of the damage that CFCs caused to the ozone layer and the contribution that HCFCs make to climate change, but some do raise issues relating to toxicity and/or flammability.[56]

Common refrigerants

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Refrigerants with very low climate impact

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With increasing regulations, refrigerants with a very low global warming potential are expected to play a dominant role in the 21st century,[57] in particular, R-290 and R-1234yf. Starting from almost no market share in 2018,[58] low GWPO devices are gaining market share in 2022.

Code	Chemical	Name	GWP 20yr[59]	GWP 100yr[59]	Status	Commentary

R-290	C_3H_8	Propane		3.3[60]	Increasing use	Low cost, widely available and efficient. They also have zero ozone depletion potential. Despite their flammability, they are increasingly used in domestic refrigerators and heat pumps. In 2010, about one-third of all household refrigerators and freezers manufactured globally used isobutane or an isobutane/propane blend, and this was expected to increase to 75% by 2020.[61]
R-600a	$HC(CH_3)_3$	Isobutane		3.3	Widely used	See R-290.
R-717	NH_3	Ammonia	0	0[62]	Widely used	Commonly used before the popularisation of CFCs, it is again being considered but does suffer from the disadvantage of toxicity, and it requires corrosion-resistant components, which restricts its domestic and small-scale use. Anhydrous ammonia is widely used in industrial refrigeration applications and hockey rinks because of its high energy efficiency and low cost.

R-1234yf HFO-1234yf	$C_3H_2F_4$	2,3,3,3-Tetrafluoropropene		<1		Less performance but also less flammable than R-290.[57] GM announced that it would start using "hydro-fluoro olefin", HFO-1234yf, in all of its brands by 2013.[63]
R-744	CO_2	Carbon dioxide	1	1	In use	Was used as a refrigerant prior to the discovery of CFCs (this was also the case for propane)[4] and now having a renaissance due to it being non-ozone depleting, non-toxic and non-flammable. It may become the working fluid of choice to replace current HFCs in cars, supermarkets, and heat pumps. Coca-Cola has fielded CO_2-based beverage coolers and the U.S. Army is considering CO_2 refrigeration.[64][65] Due to the need to operate at pressures of up to 130 bars (1,900 psi; 13,000 kPa), CO_2 systems require highly resistant components, however these have already been developed for mass production in many sectors.

Most used

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Code	Chemical	Name	Global warming potential 20yr[59]	GWP 100yr [59]	Status	Commentary
R-32 HFC-32	CH_2F_2	Difluoromethane	2430	677	Widely used	Promoted as climate-friendly substitute for R-134a and R-410A, but still with high climate impact. Has excellent heat transfer and pressure drop performance, both in condensation and vaporisation.[66] It has an atmospheric lifetime of nearly 5 years.[67] Currently used in residential and commercial air-conditioners and heat pumps.
R-134a HFC-134a	CH_2FCF_3	1,1,1,2-Tetrafluoroethane	3790	1550	Widely used	Most used in 2020 for hydronic heat pumps in Europe and the United States in spite of high GWP.[58] Commonly used in automotive air conditioners prior to phase out which began in 2012.
R-410A		50% R-32 / 50% R-125 (pentafluoroethane)	Between 2430 (R-32) and 6350 (R-125)	> 677	Widely Used	Most used in split heat pumps / AC by 2018. Almost 100% share in the USA.[58] Being phased out in the US starting in 2022.[68][69]

Banned / Phased out

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Code	Chemical	Name	Global warming potential 20yr[59]	GWP 100yr [59]	Status	Commentary
R-11 CFC-11	CCl_3F	Trichlorofluoromethane	6900	4660	Banned	Production was banned in developed countries by Montreal Protocol in 1996
R-12 CFC-12	CCl_2F_2	Dichlorodifluoromethane	10800	10200	Banned	Also known as Freon, a widely used chlorofluorocarbon halomethane (CFC). Production was banned in developed countries by Montreal Protocol in 1996, and in developing countries (article 5 countries) in 2010.[70]
R-22 HCFC-22	$CHClF_2$	Chlorodifluoromethane	5280	1760	Being phased out	A widely used hydrochlorofluorocarbon (HCFC) and powerful greenhouse gas with a GWP equal to 1810. Worldwide production of R-22 in 2008 was about 800 Gg per year, up from about 450 Gg per year in 1998. R-438A (MO-99) is a R-22 replacement.[71]

R-123 HCFC-123	$CHCl_2CF_3$	2,2-Dichloro-1,1,1-trifluoroethane	292	79	US phase-out	Used in large tonnage centrifugal chiller applications. All U.S. production and import of virgin HCFCs will be phased out by 2030, with limited exceptions.[72] R-123 refrigerant was used to retrofit some chiller that used R-11 refrigerant Trichlorofluoromethane. The production of R-11 was banned in developed countries by Montreal Protocol in 1996.[73]

Other

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Code	Chemical	Name	Global warming potential 20yr[59]	GWP 100yr [59]	Commentary
R-152a HFC-152a	CH_3CHF_2	1,1-Difluoroethane	506	138	As a compressed air duster
R-407C		Mixture of difluoromethane and pentafluoroethane and 1,1,1,2-tetrafluoroethane			A mixture of R-32, R-125, and R-134a
R-454B		Difluoromethane and 2,3,3,3-Tetrafluoropropene			HFOs blend of refrigerants Difluoromethane (R-32) and 2,3,3,3-Tetrafluoropropene (R-1234yf).[74][75][76][77]
R-513A		An HFO/HFC blend (56% R-1234yf/44%R-134a)			May replace R-134a as an interim alternative[78]

R-514A	HFO-1336mzz-Z/trans-1,2-dichloroethylene (t-DCE)	An hydrofluoroolefin (HFO)-based refrigerant to replace R-123 in low pressure centrifugal chillers for commercial and industrial applications.[79][80]

Refrigerant reclamation and disposal

[edit]
Main article: Refrigerant reclamation

Coolant and refrigerants are found throughout the industrialized world, in homes, offices, and factories, in devices such as refrigerators, air conditioners, central air conditioning systems (HVAC), freezers, and dehumidifiers. When these units are serviced, there is a risk that refrigerant gas will be vented into the atmosphere either accidentally or intentionally, hence the creation of technician training and certification programs in order to ensure that the material is conserved and managed safely. Mistreatment of these gases has been shown to deplete the ozone layer and is suspected to contribute to global warming.[81]

With the exception of isobutane and propane (R600a, R441A and R290), ammonia and CO_2 under Section 608 of the United States' Clean Air Act it is illegal to knowingly release any refrigerants into the atmosphere.[82][83]

Refrigerant reclamation is the act of processing used refrigerant gas which has previously been used in some type of refrigeration loop such that it meets specifications for new refrigerant gas. In the United States, the Clean Air Act of 1990 requires that used refrigerant be processed by a certified reclaimer, which must be licensed by the United States Environmental Protection Agency (EPA), and the material must be recovered and delivered to the reclaimer by EPA-certified technicians.[84]

Classification of refrigerants

[edit]

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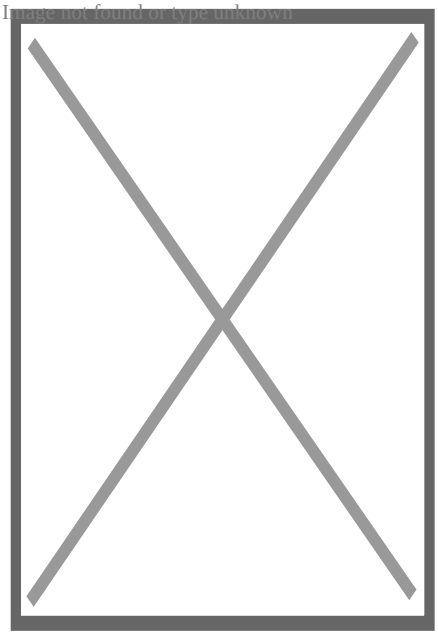

R407C pressure-enthalpy diagram, isotherms between the two saturation lines

Main article: List of refrigerants

Refrigerants may be divided into three classes according to their manner of absorption or extraction of heat from the substances to be refrigerated:[*citation needed*]

- Class 1: This class includes refrigerants that cool by phase change (typically boiling), using the refrigerant's latent heat.
- Class 2: These refrigerants cool by temperature change or 'sensible heat', the quantity of heat being the specific heat capacity x the temperature change. They are air, calcium chloride brine, sodium chloride brine, alcohol, and similar nonfreezing solutions. The purpose of Class 2 refrigerants is to receive a reduction of temperature from Class 1 refrigerants and convey this lower temperature to the area to be cooled.
- Class 3: This group consists of solutions that contain absorbed vapors of liquefiable agents or refrigerating media. These solutions function by nature of their ability to carry liquefiable vapors, which produce a cooling effect by the absorption of their heat of solution. They can also be classified into many categories.

R numbering system

[edit]

The R- numbering system was developed by DuPont (which owned the Freon trademark), and systematically identifies the molecular structure of refrigerants made

with a single halogenated hydrocarbon. ASHRAE has since set guidelines for the numbering system as follows:[85]

R-$X_1X_2X_3X_4$

- **X_1** = Number of unsaturated carbon-carbon bonds (omit if zero)
- **X_2** = Number of carbon atoms minus 1 (omit if zero)
- **X_3** = Number of hydrogen atoms plus 1
- **X_4** = Number of fluorine atoms

Series

[edit]

- **R-xx** Methane Series
- **R-1xx** Ethane Series
- **R-2xx** Propane Series
- **R-4xx** Zeotropic blend
- **R-5xx** Azeotropic blend
- **R-6xx** Saturated hydrocarbons (except for propane which is R-290)
- **R-7xx** Inorganic Compounds with a molar mass < 100
- **R-7xxx** Inorganic Compounds with a molar mass ? 100

Ethane Derived Chains

[edit]

- **Number Only** Most symmetrical isomer
- **Lower Case Suffix (a, b, c, etc.)** indicates increasingly unsymmetrical isomers

Propane Derived Chains

[edit]

- **Number Only** If only one isomer exists; otherwise:
- **First lower case suffix (a-f):**
  - **a Suffix** Cl_2 central carbon substitution
  - **b Suffix** Cl, F central carbon substitution
  - **c Suffix** F_2 central carbon substitution
  - **d Suffix** Cl, H central carbon substitution
  - **e Suffix** F, H central carbon substitution
  - **f Suffix** H_2 central carbon substitution
- **2nd Lower Case Suffix (a, b, c, etc.)** Indicates increasingly unsymmetrical isomers

Propene derivatives

[edit]

- **First lower case suffix (x, y, z)**:
  - **x Suffix** Cl substitution on central atom
  - **y Suffix** F substitution on central atom
  - **z Suffix** H substitution on central atom
- **Second lower case suffix (a-f)**:
  - **a Suffix** $=CCl_2$ methylene substitution
  - **b Suffix** =CClF methylene substitution
  - **c Suffix** $=CF_2$ methylene substitution
  - **d Suffix** =CHCl methylene substitution
  - **e Suffix** =CHF methylene substitution
  - **f Suffix** $=CH_2$ methylene substitution

Blends

[edit]

- **Upper Case Suffix (A, B, C, etc.)** Same blend with different compositions of refrigerants

Miscellaneous

[edit]

- **R-Cxxx** Cyclic compound
- **R-Exxx** Ether group is present
- **R-CExxx** Cyclic compound with an ether group
- **R-4xx/5xx + Upper Case Suffix (A, B, C, etc.)** Same blend with different composition of refrigerants
- **R-6xx + Lower Case Letter** Indicates increasingly unsymmetrical isomers
- **7xx/7xxx + Upper Case Letter** Same molar mass, different compound
- **R-xxxxB#** Bromine is present with the number after B indicating how many bromine atoms
- **R-xxxxI#** Iodine is present with the number after I indicating how many iodine atoms
- **R-xxx(E)** Trans Molecule
- **R-xxx(Z)** Cis Molecule

For example, R-134a has 2 carbon atoms, 2 hydrogen atoms, and 4 fluorine atoms, an empirical formula of tetrafluoroethane. The "a" suffix indicates that the isomer is unbalanced by one atom, giving 1,1,1,2-Tetrafluoroethane. R-134 (without the "a"

suffix) would have a molecular structure of 1,1,2,2-Tetrafluoroethane.

The same numbers are used with an R- prefix for generic refrigerants, with a "Propellant" prefix (e.g., "Propellant 12") for the same chemical used as a propellant for an aerosol spray, and with trade names for the compounds, such as "**Freon** 12". Recently, a practice of using abbreviations HFC- for hydrofluorocarbons, CFC- for chlorofluorocarbons, and HCFC- for hydrochlorofluorocarbons has arisen, because of the regulatory differences among these groups.[*citation needed*]

Refrigerant safety

[edit]

ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants*, assigns safety classifications to refrigerants based upon toxicity and flammability.

Using safety information provided by producers, ASHRAE assigns a capital letter to indicate toxicity and a number to indicate flammability. The letter "A" is the least toxic and the number 1 is the least flammable.[86]

See also

[edit]

- Brine (Refrigerant)
- Section 608
- List of Refrigerants

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Heating, ventilation, and air conditioning

Fundamental concepts

- Air changes per hour
- Bake-out
- Building envelope
- Convection
- Dilution
- Domestic energy consumption
- Enthalpy
- Fluid dynamics
- Gas compressor
- Heat pump and refrigeration cycle
- Heat transfer
- Humidity
- Infiltration
- Latent heat
- Noise control
- Outgassing
- Particulates
- Psychrometrics
- Sensible heat
- Stack effect
- Thermal comfort
- Thermal destratification
- Thermal mass
- Thermodynamics
- Vapour pressure of water

Technology

- Absorption-compression heat pump
- Absorption refrigerator
- Air barrier
- Air conditioning
- Antifreeze
- Automobile air conditioning
- Autonomous building
- Building insulation materials
- Central heating
- Central solar heating
- Chilled beam
- Chilled water
- Constant air volume (CAV)
- Coolant
- Cross ventilation
- Dedicated outdoor air system (DOAS)
- Deep water source cooling
- Demand controlled ventilation (DCV)
- Displacement ventilation
- District cooling
- District heating
- Electric heating
- Energy recovery ventilation (ERV)
- Firestop
- Forced-air
- Forced-air gas
- Free cooling
- Heat recovery ventilation (HRV)
- Hybrid heat
- Hydronics
- Ice storage air conditioning
- Kitchen ventilation
- Mixed-mode ventilation
- Microgeneration
- Passive cooling
- Passive daytime radiative cooling
- Passive house
- Passive ventilation
- Radiant heating and cooling
- Radiant cooling
- Radiant heating
- Radon mitigation
- Refrigeration
- Renewable heat
- Room air distribution
- Solar air heat
- Solar combisystem
- Solar cooling

- Air conditioner inverter
- Air door
- Air filter
- Air handler
- Air ionizer
- Air-mixing plenum
- Air purifier
- Air source heat pump
- Attic fan
- Automatic balancing valve
- Back boiler
- Barrier pipe
- Blast damper
- Boiler
- Centrifugal fan
- Ceramic heater
- Chiller
- Condensate pump
- Condenser
- Condensing boiler
- Convection heater
- Compressor
- Cooling tower
- Damper
- Dehumidifier
- Duct
- Economizer
- Electrostatic precipitator
- Evaporative cooler
- Evaporator
- Exhaust hood
- Expansion tank
- Fan
- Fan coil unit
- Fan filter unit
- Fan heater
- Fire damper
- Fireplace
- Fireplace insert
- Freeze stat
- Flue
- Freon
- Fume hood
- Furnace
- Gas compressor
- Gas heater
- Gasoline heater
- Grease duct

Measurement and control	○ Air flow meter ○ Aquastat ○ BACnet ○ Blower door ○ Building automation ○ Carbon dioxide sensor ○ Clean air delivery rate (CADR) ○ Control valve ○ Gas detector ○ Home energy monitor ○ Humidistat ○ HVAC control system ○ Infrared thermometer ○ Intelligent buildings ○ LonWorks ○ Minimum efficiency reporting value (MERV) ○ Normal temperature and pressure (NTP) ○ OpenTherm ○ Programmable communicating thermostat ○ Programmable thermostat ○ Psychrometrics ○ Room temperature ○ Smart thermostat ○ Standard temperature and pressure (STP) ○ Thermographic camera ○ Thermostat ○ Thermostatic radiator valve
Professions, trades, and services	○ Architectural acoustics ○ Architectural engineering ○ Architectural technologist ○ Building services engineering ○ Building information modeling (BIM) ○ Deep energy retrofit ○ Duct cleaning ○ Duct leakage testing ○ Environmental engineering ○ Hydronic balancing ○ Kitchen exhaust cleaning ○ Mechanical engineering ○ Mechanical, electrical, and plumbing ○ Mold growth, assessment, and remediation ○ Refrigerant reclamation ○ Testing, adjusting, balancing

Industry organizations	○ AHRI ○ AMCA ○ ASHRAE ○ ASTM International ○ BRE ○ BSRIA ○ CIBSE ○ Institute of Refrigeration ○ IIR ○ LEED ○ SMACNA ○ UMC
Health and safety	○ Indoor air quality (IAQ) ○ Passive smoking ○ Sick building syndrome (SBS) ○ Volatile organic compound (VOC)
See also	○ ASHRAE Handbook ○ Building science ○ Fireproofing ○ Glossary of HVAC terms ○ Warm Spaces ○ World Refrigeration Day ○ Template:Home automation ○ Template:Solar energy
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About Durham Supply Inc

Photo

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Things To Do in Oklahoma County

Photo

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National Cowboy & Western Heritage Museum

4.8 (5474)

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Museum of Osteology

4.8 (2737)

Photo

Oklahoma National Guard Museum

4.9 (1279)

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Oklahoma City National Memorial & Museum

4.9 (11628)

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Bricktown Water Taxi

4.7 (2568)

Photo

Stockyards City Main Street

4.6 (256)

Driving Directions in Oklahoma County

Driving Directions From Love's Travel Stop to Durham Supply Inc

Driving Directions From Texas Roadhouse to Durham Supply Inc

Driving Directions From Bob Moore Ford to Durham Supply Inc

**https://www.google.com/maps/dir/Helmerich+%26+Payne/Durham+Supply+Inc/@35
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KHB5_sB8!2m2!1d-
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**https://www.google.com/maps/dir/Orr+Nissan+Central/Durham+Supply+Inc/@35.39
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97.4774449!2d35.3963954!3e3**

Driving Directions From Crystal Bridge Tropical Conservatory to Durham Supply Inc

Driving Directions From Blue Whale of Catoosa to Durham Supply Inc

Driving Directions From Oklahoma National Guard Museum to Durham Supply Inc

Driving Directions From Oklahoma City Zoo to Durham Supply Inc

Driving Directions From The Cave House to Durham Supply Inc

Driving Directions From National Cowboy & Western Heritage Museum to Durham Supply Inc

**https://www.google.com/maps/dir/The+Cave+House/Durham+Supply+Inc/@36.1517
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**https://www.google.com/maps/dir/Museum+of+Osteology/Durham+Supply+Inc/@35
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**https://www.google.com/maps/dir/Oklahoma+Railway+Museum/Durham+Supply+In
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**https://www.google.com/maps/dir/Blue+Whale+of+Catoosa/Durham+Supply+Inc/@3
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97.4774449!2d35.3963954!3e3**

Reviews for Durham Supply Inc

Durham Supply Inc

Image not found or type unknown

Jennifer Williamson

(5)

First we would like to thank you for installing our air conditioning unit! I'd like to really brag about our technician, Mack, that came to our home to install our unit in our new home. Mack was here for most of the day and throughly explained everything we had a question about. By the late afternoon, we had cold air pumping through our vents and we couldn't have been more thankful. I can tell you, I would be very lucky to have a technician like Mack if this were my company. He was very very professional, kind, and courteous. Please give Mack a pat on the back and stay rest assured that Mack is doing a great job and upholding your company name! Mack, if you see this, great job!! Thanks for everything you did!! We now have a new HVAC company in the event we need one. We will also spread the word to others!!

Durham Supply Inc

Image not found or type unknown

Crystal Dawn

(1)

I would give 0 stars. This isnTHE WORST company for heating and air. I purchased a home less than one year ago and my ac has gone out twice and these people refuse to repair it although I AM UNDER WARRANTY!!!! They say it's an environmental issue and they can't fix it or even try to or replace my warrantied air conditioning system.

Durham Supply Inc

Image not found or type unknown

Salest

(5)

Had to make a quick run for 2 sets of ?? door locks for front and back door.. In/ out in a quick minute! They helped me right away. ?? Made sure the 2 sets had the same ? keys. The ? bathroom was clean and had everything I needed. ? ?. Made a quick inquiry about a random item... they quickly looked it up and gave me pricing. Great ? job ?

Durham Supply Inc

Image not found or type unknown

K Moore

(1)

No service after the sale. I purchased a sliding patio door and was given the wrong size sliding screen door. After speaking with the salesman and manager several times the issue is still not resolved and, I was charged full price for an incomplete door. They blamed the supplier for all the issues…and have offered me nothing to resolve this.

Durham Supply Inc

Image not found or type unknown

Noel Vandy

(5)

Thanks to the hard work of Randy our AC finally got the service it needed. These 100 degree days definitely feel long when your house isn't getting cool anymore. We were so glad when Randy came to work on the unit, he had all the tools and products he needed with him and it was all good and running well when he left. With a long drive to get here and only few opportunities to do so, we are glad he got it done in 1 visit. Now let us hope it will keep running well for a good while.

Selecting Replacement Filters for Aging Mobile Home Furnaces**View GBP**

Check our other pages :

- **Using Modern Components for Efficient Mobile Home Heating**
- **Configuring Vent Placement in Mobile Home Retrofit Projects**
- **Signs that Indicate Need for Mobile Home HVAC Replacement**
- **Understanding Lifespan Variations in Mobile Home Air Handlers**

Frequently Asked Questions

What are the key factors to consider when selecting replacement filters for aging mobile home furnaces?

The key factors include the size of the filter, the MERV rating appropriate for your system, compatibility with the furnace model, airflow requirements, and any specific needs such as allergen reduction or odor control.

How do I determine the correct size of a replacement filter for my mobile home furnace?

Check the existing filter for size specifications printed on its frame. If unavailable, measure the length, width, and depth of the filter compartment in your furnace to find an appropriately sized replacement.

What is a MERV rating, and how does it affect my choice of furnace filter?

MERV (Minimum Efficiency Reporting Value) rates a filters ability to capture particles. Higher ratings indicate better filtration but may restrict airflow if not compatible with your system. For mobile homes, a balance between adequate particle capture (MERV 6-8) and airflow is essential.

Are there specific types of filters recommended for older mobile home HVAC systems?

Yes, pleated filters are generally effective for older systems due to their increased surface area and efficiency in capturing particles without overly restricting airflow. However, always ensure that they match your system’s specifications.

Can using an incorrect replacement filter impact my mobile homes heating system performance?

Yes, using an incompatible filter can lead to reduced airflow, increased energy consumption, diminished heating efficiency, or even damage to your HVAC system. Always select filters that meet your system’s requirements.

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Company Website : **https://royal-durhamsupply.com/locations/oklahoma-city-oklahoma/**

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