

Danfoss Optyma™ condensing units for Europe

## Match your application needs – every time

With the Danfoss Optyma™ outdoor and indoor condensing units for Europe, with MBP and LBP refrigeration, there is a solution for your exact application needs. Featuring multiple lower-GWP refrigerants, high energy performance ratios and trouble-free installation, they help reduce running costs and increase cooling quality for the safer protection of perishables.

**Make the optimal choice from our extensive range of outdoor and indoor condensing units.**

### Optimal Efficiency

for high cooling quality while reducing system's life-cycle costs and downtime

# Danfoss Optyma™ packaged/outdoor condensing units

Highly efficient and reliable plug and play condensing units designed with the contractor and end-user in mind, and providing unique benefits.



## Benefits for the contractor

- Simple and fast selection and installation, reduced maintenance time
- Models compatible with multiple lower GWP refrigerants
- Reduced refrigerant costs thanks to microchannel condenser inside



## Benefits for the end-user

- Increased food safety and longer products shelf life
- Units suitable for residential areas thanks to low sound level operation
- Reduced life cycle costs of refrigeration equipment thanks to highly efficient units

### Optyma™ Slim Pack W05



Compact and cost effective. When space, quiet operation, efficiency and simple installation matter.  
**With microchannel condenser**



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### Optyma™ Slim Pack W09



Compact and cost effective. When space, quieter operation, efficiency, faster and safer installation and maintenance matter.  
**W05 base + fan speed controller and main switch included**



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### Optyma™ Plus P00/P02



Top performer. When quietness, high efficiency, connectivity and fastest installation and maintenance matter.

**P00 version:**  
With electronic controller



**P02 version:**  
P00 base + liquid injection with electronic expansion valve



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### Optyma™ Plus INVERTER



Premium unit. When top efficiency, fastest installation and maintenance, tight temperature and humidity control matter.

**With variable speed drive**



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## MBP and LBP applications



- ✓ Cold rooms, display cabinets in convenience stores, mini-markets, restaurants, fisheries, butcheries, bakeries, florists, laboratories
- ✓ Wine cellars
- ✓ Milk cooling
- ✓ Industrial processes
- ✓ Dairy and general food storage

## Designation

**OP - MSXM034 ML W05 G**

1 2 3 4 5 6 7 8

OP = Optyma

<b>1</b>	Application: <b>M</b> = MBP ; <b>L</b> = LBP
<b>2</b>	Condensing unit family: <b>S</b> = Slim Pack / <b>P</b> = OP Plus, OP Plus INVERTER
<b>3</b>	Refrigerant: <b>B</b> = R449A, R452A, R404A/R507 ; <b>G</b> = R134a, R513A ; <b>H</b> = R404A/R507 ; <b>O</b> = R448A, R449A, R452A, R404A/R507 ; <b>P</b> = R448A, R449A, R407A, R407A, R404A/507 ; <b>Q</b> = R452A, R404A/R507 ; <b>X</b> = R404A/R507, R134a, R513A, R407A, R407F, R448A, R449A, R452A ; <b>Y</b> = R404A/R507, R449A
<b>4</b>	<b>M</b> = Microchannel condenser
<b>5</b>	Displacement in cm <sup>3</sup> : Example 034 = 34 cm <sup>3</sup>
<b>6</b>	Compressor platform: such as VVL = variable speed scroll V LZ
<b>7</b>	<b>W05:</b> Optyma™ Slim Pack <b>W09:</b> Optyma™ Slim Pack with fan speed controller and main switch <b>P00:</b> Optyma™ Plus <b>P02:</b> Optyma™ Plus with liquid injection <b>P01:</b> Optyma™ Plus INVERTER
<b>8</b>	Electrical code: <b>G</b> = 230V/1-phase compressor & fan <b>E</b> = 400V/3-phase compressor & 230V/1-phase fan

## Feature overview:

	Optyma™ Slim Pack		Optyma™ Plus		Optyma™ Plus INVERTER
	W05	W09	P00	P02	
IP level	IP54		IP54		IP54
Compressor technology	Scroll/Reciprocating		Scroll/Reciprocating	Scroll	Variable speed scroll
Control box (pre-wired E-panel)	yes		yes		yes
Microchannel condenser	yes		yes		yes
Fan speed controller	-	yes	yes		yes
Main switch (circuit breaker)	-	yes	yes		yes
Filter drier (flare connections)	yes		yes		yes
Sight glass	yes		yes		yes
Crankcase heater	yes		yes		yes
HP/LP adjustable pressostat	Mechanical		Electronic		Electronic
Liquid injection kit	-		-	yes	-
Fail safe mini-pressostat	-		Mechanical		Mechanical
Access door(s)	-		yes		yes
Acoustic insulation	-		yes		yes
Condensing unit electronic controller	-		yes		yes
Network connectivity	-		yes		yes
Stack mounting	-		yes		-
Oil separator	-		-		yes
Net weight in kg	B1 housing: from 50.4 to 53 B2 housing: from 61.5 to 77 B3 housing: from 76 to 79		H1 housing: from 49 to 53 H2 housing: from 80 to 94 H3 housing: from 101 to 107 H4 housing: 169	H3 housing: 135 and 136 H4 housing: from 161 to 166	124 & 125
Dimensions in mm (height x width x depth)	B1 housing: 530 x 910 x 364 B2 housing: 690 x 1087 x 464 B3 housing: 825 x 1105 x 464		H1 housing: 652 x 906 x 356 H2 housing: 813 x 1055 x 430 H3 housing: 967 x 1406 x 481 H4 housing: 966 x 1800 x 600	H3 housing: 965 x 1441 x 531 H4 housing: 966 x 1835 x 650	965 x 1406 x 481

## Overview by range and refrigerant:

Min / Max Cooling capacity range [kW]	Optyma™ Slim Pack	Optyma™ Plus	Optyma™ Plus INVERTER
<b>Medium temperature (MBP)</b>			
R449A	0.8 - 10.2	0.7 - 14.9	1.7 - 8.3
R448A	3.3 - 10.2	3.3 - 14.9	1.7 - 8.3
R134a	0.6 - 6.6	1.7 - 10.2	-
R513A	0.6 - 7.0	1.7 - 10.3	-
R407A	3.3 - 9.9	3.3 - 14.6	1.7 - 8.4
R407F	3.5 - 10.2	3.5 - 15.5	1.8 - 9
R452A	1.4 - 10.4	1.4 - 15.3	-
R404A/507	0.9 - 10.3	0.7 - 16	1.8 - 9
<b>Low temperature (LBP)</b>			
R448A/R449A	-	2.3 - 6	-
R452A	0.4 - 3.3	0.4 - 6.1	-
R404A/507	0.4 - 3.6	0.5 - 6.2	-

Rating conditions EN 13215 (dew point):

**MBP:** Ambient temp = 32°C; Evap temp = -10°C; Superheat = 10K; Subcooling = 0K / **LBP:** Ambient temp = 32°C; Evap temp = -35°C; Superheat = 10K; Subcooling = 0K

## Selection examples for cold rooms

Make a precise selection with the Cold Room module in Coolselector 2 software.

Range	Model and cooling capacity by cold room type	Meat		Fish		Laboratories		Fruit & Vegetables +8°C - 18h		Fruit & Vegetables 0°C - 18h		Butter, Eggs, Cheese +5°C - 18h		Freezers -18°C - 16h	
		+1°C - 18h		+1°C - 18h		+12°C - 18h									
		Cap. [W]	CR* [m³]	Cap. [W]	CR* [m³]	Cap. [W]	CR* [m³]	Cap. [W]	CR* [m³]	Cap. [W]	CR* [m³]	Cap. [W]	CR* [m³]	Cap. [W]	CR* [m³]
OP Slim Pack with R513A	OP-MSGM018 / 021 / 026	900	6	900	6	1270	8	1270	17	900	7	1030	9		
OP Plus with R449A	OP-MPBM018 / 024	1350	11	1350	11	1890	13	1890	30	1350	12	1530	16		
OP Plus INVERTER with R448A	OP-MPPM044	2500	20	2500	20	3400	20	3500	65	2500	20	2800	35		
OP Slim Pack with R452A	OP-LSQM034													680	2

Data relate to +32°C ambient temperature; please refer to Danfoss for other working conditions. Cold room data: Temperature - Daily working hours. \* Volume of cold room.

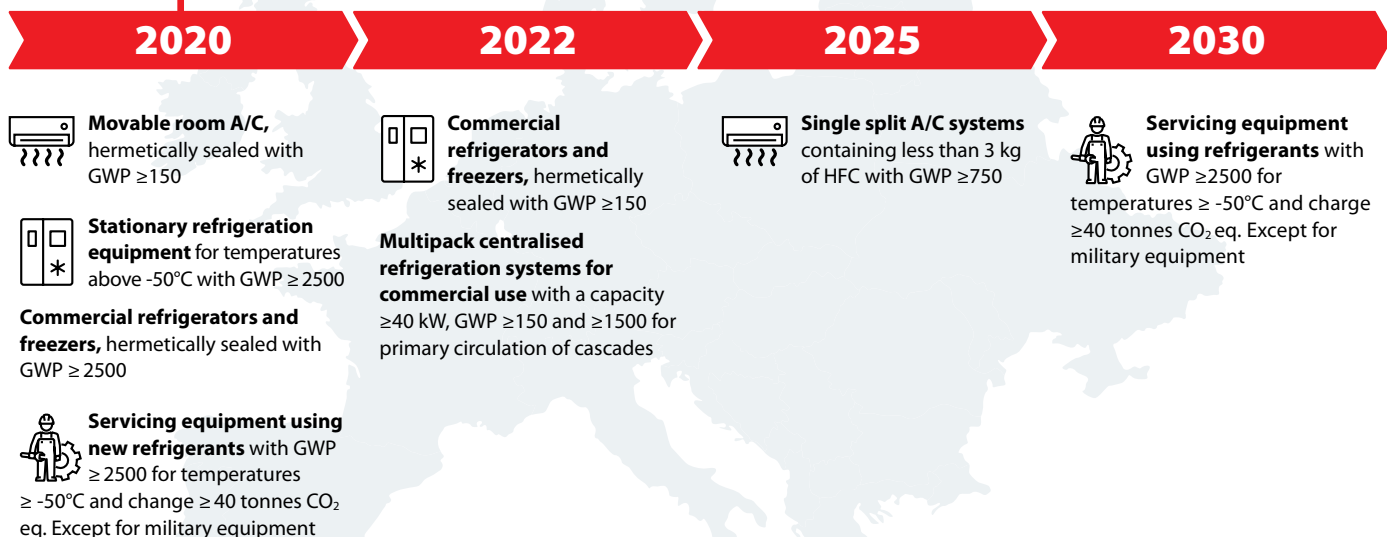
# Reduce direct and indirect emissions

By choosing lower GWP refrigerants and highly efficient condensing units, installers make the choice of creating a sustainable cooling industry. See the regulations impacting the condensing units in Europe and make the right choice with Danfoss solutions.



## F-Gas affected applications and timeline

The F-Gas regulation puts in place HFC phase down on high GWP (Global Warming Potential) refrigerants.



## EcoDesign affected applications

From the 1st July 2018, only condensing units that achieve certain energy performance ratings can get the CE marking and be sold in the EU territories.

ENTR Lot 1 **2015/1095 and 2015/1094** for Professional Refrigeration:



### IMPACTED APPLICATIONS

- Condensing units
- Professional refrigerated storage cabinets
- Blast cabinets
- Process chillers



### SEASONAL ENERGY PERFORMANCE RATIO (SEPR)

SEPR value for:

- Low temperatures: above 2 kW
- Medium temperatures: above 5 kW
- Below these limits: COP

## Minimum Energy Performance Standards for condensing units

Medium temperatures (-10°C) / kW*	Medium temperatures (-10°C) / kW*			
	0.2-1	1-5	5-20	20-50
COP	1.4	1.6		
SEPR**			2.55	2.65

Low temperatures (-35°C) / kW*	Low temperatures (-35°C) / kW*			
	0.1-0.4	0.4-2	2-8	8-20
COP	0.8	0.95		
SEPR**			1.6	1.7

\* Rated capacity at full load with ambient temperature set at  $32^{\circ}\text{C}$  (Standards: EN13215 and 13771-2).

\*\* The Seasonal Energy Performance Ratio provides cooling performances at standard rating conditions. It is representative of the variations in load and ambient temperatures throughout the year, and calculated as the ratio between annual cooling demand and annual electricity consumption (Standards: EN13215 and 13771-2 and EcoDesign Directive 2009/125/EC).

# Optyma™ Plus with liquid injection

## Inject a little simplicity and reliability into your installations

The introduction of electronic liquid injection technology on LBP models enables precise temperature control of the application with an extended operating envelope.



### Avoid system breakdown at hot ambient temperatures

The electronic liquid injection helps manage higher discharge temperatures, maintaining best-in-class operating conditions at up to 43°C ambient temperature.



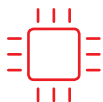
### Reliable over time

The electronic management ensures that the right quantity of liquid is injected into the compressor and increases the system's reliability.



### Streamline the refrigerant bottles

Choose one sustainable and economic refrigerant for positive and negative application temperatures: R448A or R449A.



### Simple and pre-set safe modulation

The electronic module is pre-programmed to protect the compressor against high discharge temperatures - increasing the system's lifespan.



## Refrigerants with a GWP level below 2500

### R448A/R449A\* – MBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -10°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-MPYM008	1	114X4119	0.75	1.93			29
OP-MPYM009	1	114X4120	0.80	1.89			30
OP-MPYM012	1	114X4121	1.10	1.89			32
OP-MPYM014	1	114X4122	1.15	1.60			29
OP-MPB018	1	114X4230	1.47	1.91			36
OP-MPB024	1	114X4200	1.85	2.08			36
OP-MPB026	1	114X4212	2.05	1.97			36
	3	114X4213					
OP-MPB034	1	114X4226	2.56	1.94			36
	3	114X4227					
OP-MPXM034	1	114X4261	3.34	2.07			37
	3	114X4264					
OP-MPXM046	1	114X4281	4.44	2.03			37
	3	114X4284					
OP-MPXM057	1	114X4290	5.28	1.84	3.15	11 624	37
	3	114X4293					
OP-MPXM068	1	114X4308	6.77	2.20	3.48	13 040	38
	3	114X4311					
OP-MPXM080	1	114X4321	7.80	2.14	3.49	16 095	38
	3	114X4324					
OP-MPXM108	3	114X4344	10.17	1.96	3.31	19 632	44
OP-MPXM125	3	114X4414	12.14	2.12	3.42	22 726	46
OP-MPXM162	3	114X4434	14.92	1.91	3.13	14 002	46

### R448A/R449A\* – LBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -35C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-LPOM067	3	114X3371	2.34	1.12	1.60	12 537	40
OP-LPOM084	3	114X3372	2.94	1.15	1.64	15 390	42
OP-LPOM098	3	114X3373	3.49	1.23	1.75	17 035	43
OP-LPOM120	3	114X3485	4.29	1.20	1.65	22 019	47
OP-LPOM168	3	114X3486	6.07	1.30	1.81	28 436	47

\*Cooling capacities are for R449A

Conditions EN 13215 (dew point): +32°C ambient temp., superheat 10K, subcooling 0K  
 Rated COP, SEPR & annual electricity consumption at EcoDesign rating conditions:  
 +32°C ambient, subcooling 0 K, RGT20°C  
 Values refer to 3-phase units

# Optyma™ Plus

## Refrigerants with a GWP level below 2500

### R134a – MBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -10°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-MPGM033	1	114X4220	1.66	2.05			36
OP-MPXM034	1	114X4261	2.16	2.25			37
	3	114X4264					
OP-MPXM046	1	114X4281	2.92	2.33			37
	3	114X4284					
OP-MPXM057	1	114X4290	3.54	2.28			37
	3	114X4293					
OP-MPXM068	1	114X4308	4.38	2.37			38
	3	114X4311					
OP-MPXM080	1	114X4321	5.09	2.26	3.43	10 684	38
	3	114X4324					
OP-MPXM108	3	114X4344	6.64	2.40	3.74	11 215	44
OP-MPXM125	3	114X4414	7.98	2.23	3.40	14 818	46
OP-MPXM162	3	114X4434	10.25	2.25	3.46	18 715	46

### R513A – MBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -10°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-MPGM033	1	114X4220	1.76	2.03			36
OP-MPXM034	1	114X4261	2.25	2.24			37
	3	114X4264					
OP-MPXM046	1	114X4281	3.04	2.31			37
	3	114X4284					
OP-MPXM057	1	114X4290	3.70	2.29			37
	3	114X4293					
OP-MPXM068	1	114X4308	4.65	2.48			38
	3	114X4311					
OP-MPXM080	1	114X4321	5.41	2.54	3.82	10 745	38
	3	114X4324					
OP-MPXM108	3	114X4344	7.01	2.36	3.73	12 036	44
OP-MPXM125	3	114X4414	8.46	2.46	3.66	14 798	46
OP-MPXM162	3	114X4434	10.33	2.13	3.15	21 018	46

### R452A – MBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -10°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-MPBM018	1	114X4230	1.39	1.64			33
OP-MPBM024	1	114X4200	1.78	1.83			33
OP-MPBM026	1	114X4212	1.95	1.70			36
	3	114X4213					
OP-MPBM034	1	114X4226	2.50	1.72			37
	3	114X4227					
OP-MPXM034	1	114X4261	3.33	2.02			38
	3	114X4264					
OP-MPXM046	1	114X4281	4.47	2.03			38
	3	114X4284					
OP-MPXM057	1	114X4290	5.49	2.02	3.37	11 399	38
	3	114X4293					
OP-MPXM068	1	114X4308	6.73	2.10	3.39	13 580	39
	3	114X4311					
OP-MPXM080	1	114X4321	7.80	2.09	3.44	16 126	39
	3	114X4324					
OP-MPXM108	3	114X4344	10.38	2.00	3.39	19 878	39
OP-MPXM125	3	114X4414	12.63	2.17	3.49	23 443	46
OP-MPXM162	3	114X4434	15.34	1.92	3.12	31 989	46

### R452A – LBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -35°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-LPQM017	1	114X3118	0.40	0.95			29
OP-LPQM026	1	114X3216	0.58	0.96			36
OP-LPQM048	1	114X3233	0.95	1.07			38
	3	114X3225					
OP-LPQM068	1	114X3249	1.22	0.98			39
	3	114X3241					
OP-LPQM074	1	114X3252	1.45	1.00			38
	3	114X3253					
OP-LPQM067	3	114X3371	2.30	1.34	1.74	11 721	40
OP-LPQM084	3	114X3372	2.82	1.29	1.70	14 622	42
OP-LPQM098	3	114X3373	3.28	1.27	1.70	17 028	43
OP-LPQM120	3	114X3485	4.26	1.39	1.88	21 007	47
OP-LPQM168	3	114X3486	6.06	1.38	1.84	28 990	47

Conditions EN 13215 (dew point): +32°C ambient temp., superheat 10K, subcooling 0K  
 Rated COP, SEPR & annual electricity consumption at EcoDesign rating conditions:  
 +32°C ambient, Subcooling 0 K, RGT20°C  
 Values refer to 3-phase units

# Optyma™ Plus

## Refrigerants with a GWP level above 2500

### R404A – MBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -10°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-MPYM008	1	114X4119	0.85	2.11			29
OP-MPYM009	1	114X4120	0.91	1.99			30
OP-MPYM012	1	114X4121	1.24	2.01			32
OP-MPYM014	1	114X4122	1.28	1.69			29
OP-MPBM018	1	114X4230	1.67	1.93			36
OP-MPBM024	1	114X4200	2.07	2.07			36
OP-MPBM026	1	114X4212	2.29	1.95			36
	3	114X4213					
OP-MPBM034	1	114X4226	2.82	1.89			36
	3	114X4227					
OP-MPXM034	1	114X4261	3.40	2.11			37
	3	114X4264					
OP-MPXM046	1	114X4281	4.51	2.03			37
	3	114X4284					
OP-MPXM057	1	114X4290	5.25	1.76	3.01	11 803	37
	3	114X4293					
OP-MPXM068	1	114X4308	7.18	2.31	3.73	12 731	38
	3	114X4311					
OP-MPXM080	1	114X4321	8.35	2.29	3.71	16 158	38
	3	114X4324					
OP-MPXM108	3	114X4344	10.32	2	3.31	20 330	44
OP-MPXM125	3	114X4414	12.82	2.18	3.48	23 945	46
OP-MPXM162	3	114X4434	16.03	1.99	3.23	32 314	46

### R404A – LBP

Model	Phases	Code no.	Cooling capacity in [kW] at evaporating temperature -35°C	Rated COP	SEPR	Annual electricity consumption [kWh]	Sound pressure level @10m dB(A)
OP-LPQM017	1	114X3118	0.48	1.07			29
OP-LPQM026	1	114X3216	0.65	1.01			36
OP-LPQM048	1	114X3225	1.00	1.13			38
	3	114X3233					
OP-LPQM074	1	114X3252	1.60	1.06			38
	3	114X3253					
OP-LPQM068	1	114X3241	1.63	1.14			39
	3	114X3249					
OP-LPOM067	3	114X3371	2.60	1.21	1.69	13 079	40
OP-LPOM084	3	114X3372	3.11	1.23	1.77	15 519	42
OP-LPOM098	3	114X3373	3.61	1.26	1.75	17 570	43
OP-LPOM120	3	114X3485	4.69	1.27	1.84	23 295	47
OP-LPOM168	3	114X3486	6.24	1.25	1.91	29 980	47

Did you know?

From 1st January 2020, R404A is banned in new installations in Europe. Only recycled refrigerant is allowed for servicing.



For regular updates and detailed capacities, please refer to Coolselector®2 software [coolselector.danfoss.com](http://coolselector.danfoss.com)

Conditions EN 13215 (dew point): +32°C ambient temp., superheat 10K, subcooling 0K  
 Rated COP, SEPR & annual electricity consumption at EcoDesign rating conditions:  
 +32°C ambient, subcooling 0 K, RGT20°C  
 Values refer to 3-phase units



## Danfoss is with you **all the way**

Danfoss has a global market presence selling in **over 100 countries** and with factories, Application Development Centers (ADC) and laboratories all over the globe\*.

This global footprint ensures the highest level of **customer service and application expertise** with local technical support near you- speaking your language, and understanding your everyday needs and challenges. Backed by a wide distribution network trained to select, specify and sell our products, it's the guarantee that we are by your side, all the way.

For **24/7 support**, we have developed intuitive tools and apps to help you to make the right product selection, choose an alternative refrigerant, troubleshoot your installation or be trained to use natural refrigerants or the latest Danfoss products.

Learn more.  
Achieve more.

Cold room:

[coldroom.danfoss.com](http://coldroom.danfoss.com)

Product selection:

[coolselector.danfoss.com](http://coolselector.danfoss.com)

Free learning platform:

[learning.danfoss.com](http://learning.danfoss.com)

Refrigerants and Energy Efficiency:

[refrigerants.danfoss.com](http://refrigerants.danfoss.com)

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Denmark - Nordborg  
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