



# BATTLE CARD

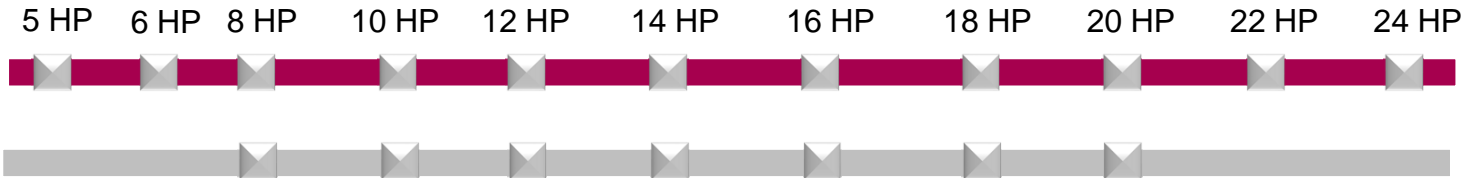
## HITACHI SET FREE $\Sigma$ vs COMPETITOR M

PAC – November 2017

# HITACHI

### Heat Recovery - Range comparison

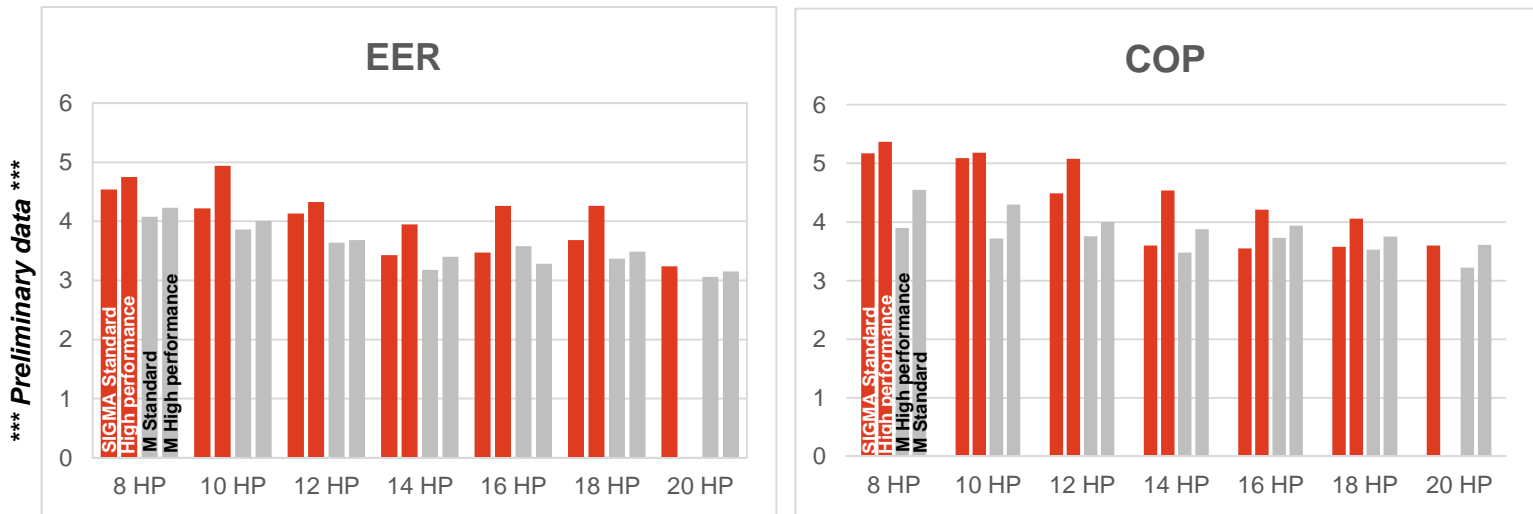
- HITACHI :**
- ✓ Standard (FSXNS) 8 to 24 HP
  - ✓ High efficiency (FSXNP) 5 to 18 HP



- Competitor M :**
- ✓ City Multi (PURY-P-YLM) 8 to 20 HP
  - ✓ City Multi He (PURY-PE-YLM) 8 to 20 HP

- Hitachi has a wider range with an exclusivity on 5 & 6 HP and cost competitive advantage on 22/24 HP

### Performance comparison



- High Efficiency FSXNP has always **best performances**
- Standard efficiency FSXNS 8-12 HP has **better EER and COP** than M High efficiency

### Additional information

- Hitachi provides **for free** electricity peak control, low noise and emergency stop on signal compared to M who needs an additional PCB
- **Less refrigerant charge**, EN378 compliant with 2 times more indoor units than M
- **Higher static pressure** : 80 Pa vs 60 Pa

### Keys benefits

- ✓ **Wider range 5 to 24 HP**
- ✓ **Higher efficiency**
- ✓ **Optimum comfort**
- ✓ **Less refrigerant charge**



SET FREE  $\Sigma$

HITACHI vs COMPETITOR M

**Design**

Hitachi Set Free sigma



Competitor M



**Specification table – Preliminary Data**

HP		8				10				12				14			
Manufacturer		HITACHI	HITACHI	M	M	HITACHI	HITACHI	M	M	HITACHI	HITACHI	M	M	HITACHI	HITACHI	M	M
Type		Standard	High performance	City Multi	City Multi He	Standard	High performance	City Multi	City Multi He	Standard	High performance	City Multi	City Multi He	Standard	High performance	City Multi	City Multi He
Outdoor unit reference		RAS-8FSXNSE	RAS-8FSXNPE	PURY-P200YLM	PURY-EP200YLM	RAS-10FSXNSE	RAS-10FSXNPE	PURY-P250YLM	PURY-EP250YLM	RAS-12FSXNSE	RAS-12FSXNPE	PURY-P300YLM	PURY-EP300YLM	RAS-14FSXNSE	RAS-14FSXNPE	PURY-P350YLM	PURY-EP350YLM
Cooling Cap	kW	22,4	22,4	22,4	22,4	28	28	28	28	33,5	33,5	33,5	33,5	40	40	40	40
Heating Cap	kW	25	25	25	25	31,5	31,5	31,5	31,5	37,6	37,6	37,5	37,5	45	45	45	45
EER		4,54	4,75	4,23	4,08	4,22	4,94	4,01	3,86	4,13	4,33	3,68	3,64	3,43	3,95	3,4	3,18
COP		5,17	5,37	4,55	3,9	5,09	5,18	4,3	3,72	4,49	5,08	4	3,76	3,6	4,54	3,88	3,48
Sound Power	dB(A)	80	77	83	83	82	82	84	84	82	83	86	86	85	85	86	86
Height	mm	1725	1725	1710	1710	1725	1725	1710	1710	1725	1725	1710	1710	1725	1725	1710	1710
Width	mm	959	1219	920	920	959	1219	920	920	959	1219	1220	1220	1219	1219	1220	1220
Depth	mm	784	784	740	740	784	784	740	740	784	784	740	740	784	784	740	740
Weight	kg	195	258	205	218	195	262	205	218	215	263	248	260	271	273	248	260

HP		16				18				20		
Manufacturer		HITACHI	HITACHI	M	M	HITACHI	HITACHI	M	M	HITACHI	M	M
Type		Standard	High performance	City Multi	City Multi He	Standard	High performance	City Multi	City Multi He	Standard	City Multi	City Multi He
Outdoor unit reference		RAS-16FSXNSE	RAS-16FSXNPE	PURY-P400YLM	PURY-EP400YLM	RAS-18FSXNSE	RAS-18FSXNPE	PURY-P450YLM	PURY-EP450YLM	RAS-20FSXNSE	PURY-P500YLM	PURY-EP500YLM
Cooling Cap	kW	45	45	45	45	50	50	50	50	56	56	56
Heating Cap	kW	50	50	45	50	56	56	56	56	63	58	63
EER		3,47	4,26	3,28	3,58	3,68	4,26	3,49	3,37	3,24	3,15	3,06
COP		3,55	4,21	3,94	3,73	3,58	4,06	3,75	3,53	3,65	3,61	3,22
Sound Power	dB(A)	85	85	86	86	86	86	86	86	86	87	87
Height	mm	1725	1725	1710	1710	1725	1725	1710	1710	1725	1710	1710
Width	mm	1219	1609	1220	1750	1219	1609	1750	1750	1609	1750	1750
Depth	mm	784	784	740	740	784	784	740	740	784	740	740
Weight	kg	314	350	246	260	315	365	321	338	355	321	351



# BATTLE CARD

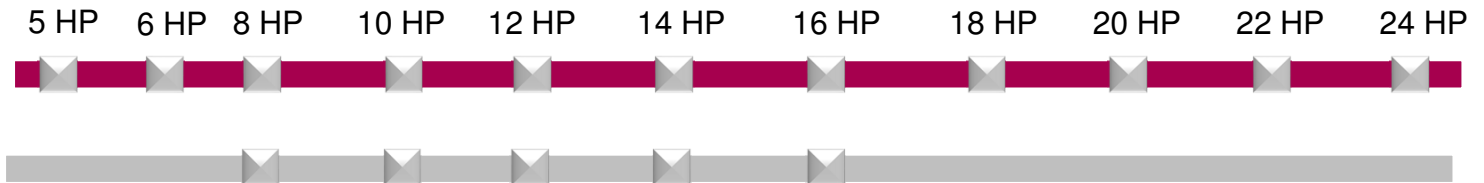
## HITACHI SET FREE $\Sigma$ vs COMPETITOR F

VRF – Feb 2018

# HITACHI

### Heat recovery - Range comparison

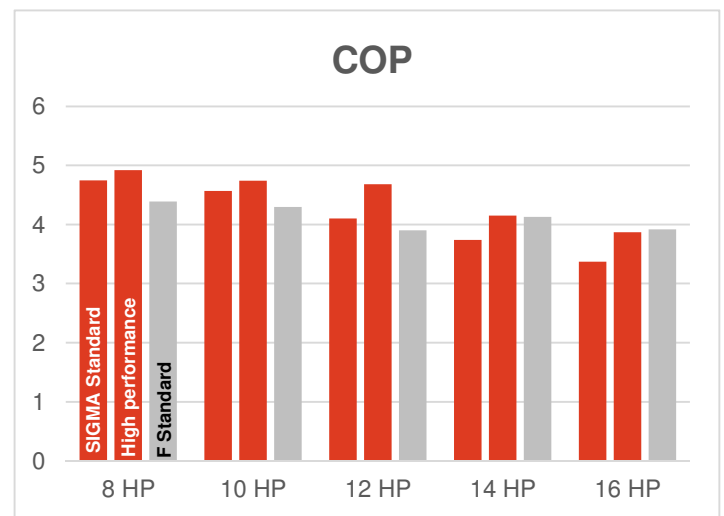
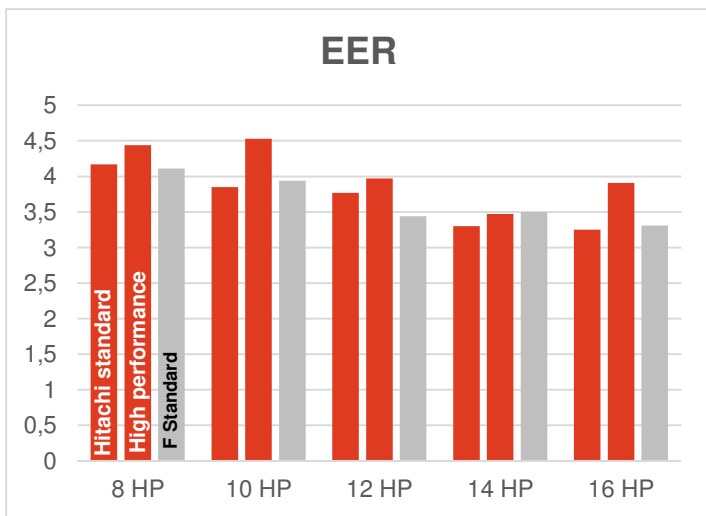
- HITACHI** ✓ Standard (FSXNSE) **8 to 24 HP**
- ✓ High performance (FSXNPE) **5 to 18 HP**



Competitor F : ✓ VRF2 (GALH) **8 to 16 HP**

- Hitachi has the widest range with **an exclusivity on 5 & 6 HP**

### Additional informations



- Standard efficiency FSXNSE 8-12 HP **has better EER and COP**
- High efficiency FSXNPE has **always best performances**

### Features comparison

- Multi CH box **up to 16 ports** compared to 4 ports for F
- Hitachi Multi CH box have **flare connections** to indoor units compared to brazed for D

### Keys benefits

- ✓ **Wider range : 5 to 24 HP**
- ✓ **Higher efficiency**



**SET FREE  $\Sigma$**

**HITACHI vs COMPETITOR F**

## Design

**Hitachi Set Free sigma**



**Competitor F**

## Specification table

HP		8			10			12			14			16			18	
Manufacturer		HITACHI	HITACHI	F	HITACHI	HITACHI	F	HITACHI	HITACHI	F	HITACHI	HITACHI	F	HITACHI	HITACHI	F	HITACHI	HITACHI
Type		Standard	High performance	Standard VRF2	Standard	High performance	Standard VRF2	Standard	High performance	Standard VRF2	Standard	High performance	Standard VRF2	Standard	High performance	Standard VRF2	Standard	High performance
Outdoor unit reference		RAS-8FSXNSE	RAS-8FSXNPE	AJYA72GALH	RAS-10FSXNSE	RAS-10FSXNPE	AJYA90GALH	RAS-12FSXNSE	RAS-12FSXNPE	AJY108GALH	RAS-14FSXNSE	RAS-14FSXNPE	AJY126GALH	RAS-16FSXNSE	RAS-16FSXNPE	AJY144GALH	RAS-18FSXNSE	RAS-18FSXNPE
Cooling Cap	kW	22,4	22,4	22,4	28	28	28	33,5	33,5	33,5	40	40	40	45	45	45	50	50
Heating Cap	kW	25	25	25	31,5	31,5	31,5	37,6	37,6	37,6	45	45	45	50	50	50	56	56
EER		4,15	4,44	4,11	3,85	4,53	3,94	3,77	3,97	3,44	3,3	3,47	3,53	3,25	3,91	3,31	3,35	3,91
COP		4,75	4,92	4,39	4,57	4,74	4,3	4,1	4,68	3,9	3,74	4,15	4,13	3,37	3,87	3,92	3,29	3,74
Sound Power	dB(A)	80	77	-	82	82	-	82	83	-	85	85	-	85	85	-	86	86
Height	mm	1725	1725	1690	1725	1725	1690	1725	1725	1690	1725	1725	1690	1725	1725	1690	1725	1725
Width	mm	959	1219	930	959	1219	930	959	1219	930	1219	1219	1240	1219	1609	1240	1219	1609
Depth	mm	784	784	765	784	784	765	784	784	765	784	784	765	784	784	765	784	784
Weight	kg	210	274	262	210	278	262	233	282	262	289	292	286	332	369	286	333	384



# BATTLE CARD

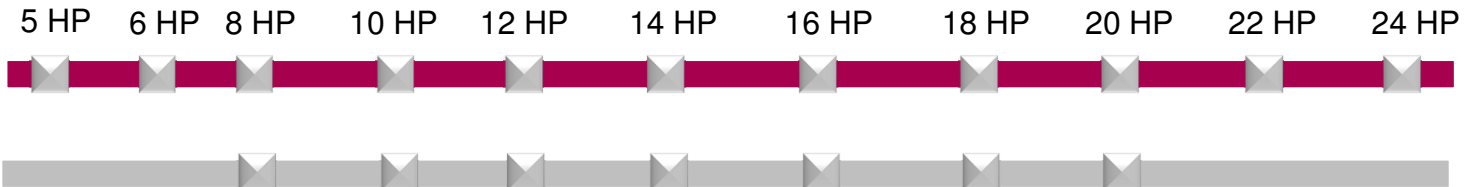
## HITACHI SET FREE $\Sigma$ vs COMPETITOR D

VRF – Feb 2018

# HITACHI

### Heat recovery - Range comparison

- ✓ **HITACHI** Standard (FSXNSE) **8 to 24 HP**
- ✓ **HITACHI** High efficiency (FSXNPE) **5 to 18 HP**

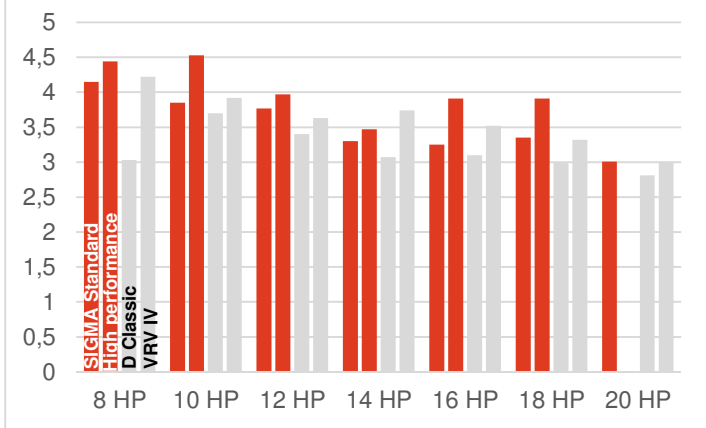


- Competitor D : ✓ VRV IV with continuous heating (RYYQ) : **8 to 20 HP**
- Competitor D : ✓ VRV IV without continuous heating (RXYQ) : **8 to 20 HP**
- Competitor D : ✓ VRV classic (RXYCQ) : **8 to 20 HP**

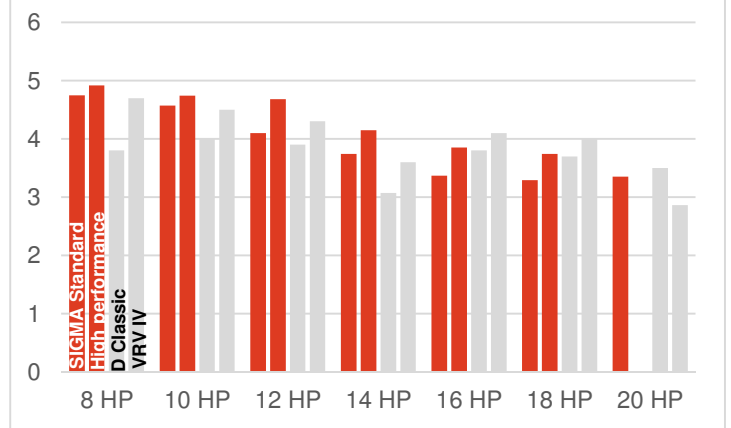
- Hitachi has a wider range with **an exclusivity on 5 & 6 HP** and **cost competitive advantage on 22/24 HP**

### Performance comparison

#### EER



#### COP



- SIGMA High efficiency FSXNPE 8-12 HP **has better EER and COP** than D High efficiency

### Additional informations

- Hitachi provide **for free** : electricity peak control and low noise on signal compare to D which need an additional PCB
- Hitachi Multi CH box have **flare connections** to indoor units compared to brazed for D
- Continuous heating VRV IV needs more heating capacity to load accumulator for defrosting : **2 sizes more** to really have continuous heating

### Keys benefits

✓ **Wider range : 5 to 24 HP**

✓ **Higher efficiency**



**SET FREE  $\Sigma$**

**HITACHI vs COMPETITOR D**

**Design**

**Hitachi Set Free sigma**



**Competitor D**

**Specification table**

HP		8			10			12			14			16		
Manufacturer		HITACHI	HITACHI	D	HITACHI	HITACHI	D	HITACHI	HITACHI	D	HITACHI	HITACHI	D	HITACHI	HITACHI	D
Type		Standard	High performance	VRV IV	Standard	High performance	VRV IV	Standard	High performance	VRV IV	Standard	High performance	VRV IV	Standard	High performance	VRV IV
Outdoor unit reference		RAS-8FSXNSE	RAS-8FSXNPE	REYQ8T	RAS-10FSXNSE	RAS-10FSXNPE	REYQ10T	RAS-12FSXNSE	RAS-12FSXNPE	REYQ12T	RAS-14FSXNSE	RAS-14FSXNPE	REYQ14T	RAS-16FSXNSE	RAS-16FSXNPE	REYQ16T
Cooling Cap	kW	22,4	22,4	22,4	28	28	28	33,5	33,5	33,5	40	40	40	45	45	45
Heating Cap	kW	25	25	22,4	31,5	31,5	28	37,6	37,5	33,5	45	45	40	50	50	45
EER		<b>4,15</b>	<b>4,44</b>	4,22	<b>3,85</b>	<b>4,53</b>	3,92	<b>3,77</b>	<b>3,97</b>	3,63	<b>3,3</b>	<b>3,47</b>	3,74	<b>3,25</b>	<b>3,91</b>	3,52
COP		<b>4,75</b>	<b>4,92</b>	4,72	<b>4,57</b>	<b>4,74</b>	4,45	<b>4,1</b>	<b>4,68</b>	4,16	<b>3,74</b>	<b>4,15</b>	4,17	<b>3,37</b>	<b>3,87</b>	4,02
Sound Power	dB(A)	80	<b>77</b>	78	82	82	79	82	83	81	85	85	81	<b>85</b>	<b>85</b>	86
Height	mm	1725	1725	1685	1725	1725	1685	1725	1725	1685	1725	1725	1685	1725	1725	1685
Width	mm	959	1219	930	959	1219	930	959	1219	930	<b>1219</b>	<b>1219</b>	1240	<b>1219</b>	1609	1240
Depth	mm	784	784	765	784	784	765	784	784	765	784	784	765	784	784	765
Weight	kg	210	274	210	<b>210</b>	278	218	233	282	218	<b>289</b>	<b>292</b>	304	332	369	305

HP		16			18			20	
Manufacturer		HITACHI	HITACHI	D	HITACHI	HITACHI	D	HITACHI	D
Type		Standard	High performance	VRV IV	Standard	High performance	VRV IV	Standard	VRV IV
Outdoor unit reference		RAS-16FSXNSE	RAS-16FSXNPE	REYQ16T	RAS-18FSXNSE	RAS-18FSXNPE	REYQ18T	RAS-20FSXNSE	REYQ20T
Cooling Cap	kW	45	45	45	50	50	50	56	56
Heating Cap	kW	50	50	45	56	56	50	63	56
EER		<b>3,25</b>	<b>3,91</b>	3,52	<b>3,35</b>	<b>3,91</b>	3,32	<b>3,01</b>	3,001
COP		<b>3,37</b>	<b>3,87</b>	4,02	<b>3,29</b>	<b>3,74</b>	4,1	<b>3,35</b>	3,76
Sound Power	dB(A)	<b>85</b>	<b>85</b>	86	86	86	86	<b>86</b>	88
Height	mm	1725	1725	1685	1725	1725	1685	1725	1685
Width	mm	<b>1219</b>	1609	1240	<b>1219</b>	1609	1240	1609	1240
Depth	mm	784	784	765	784	784	765	784	765
Weight	kg	332	369	305	<b>333</b>	384	337	382	337



# BATTLE CARD

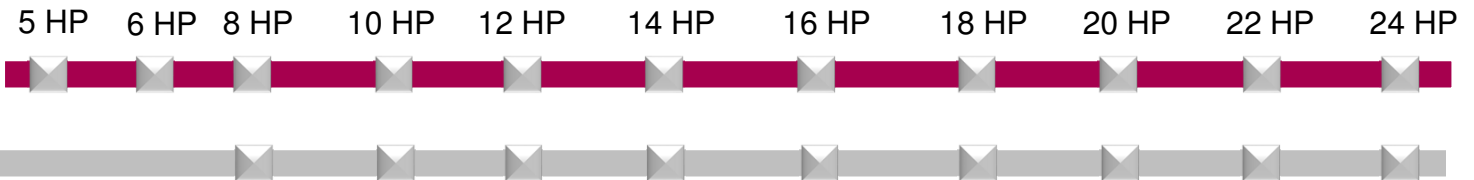
## HITACHI SET FREE $\Sigma$ vs COMPETITOR L

VRF – Feb 2018

# HITACHI

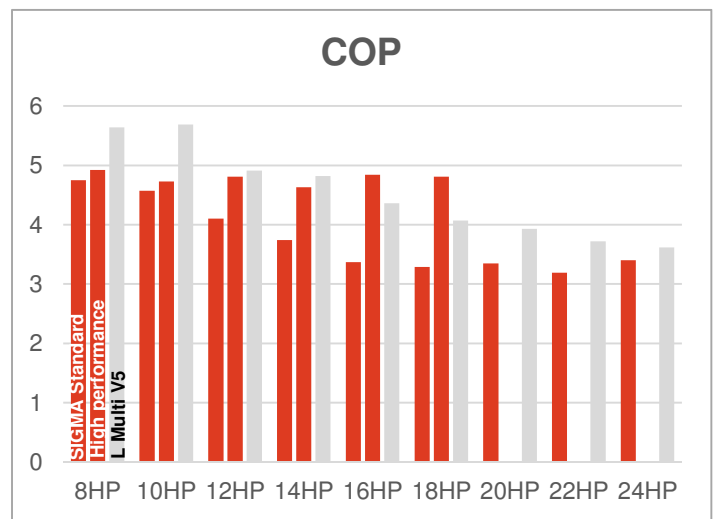
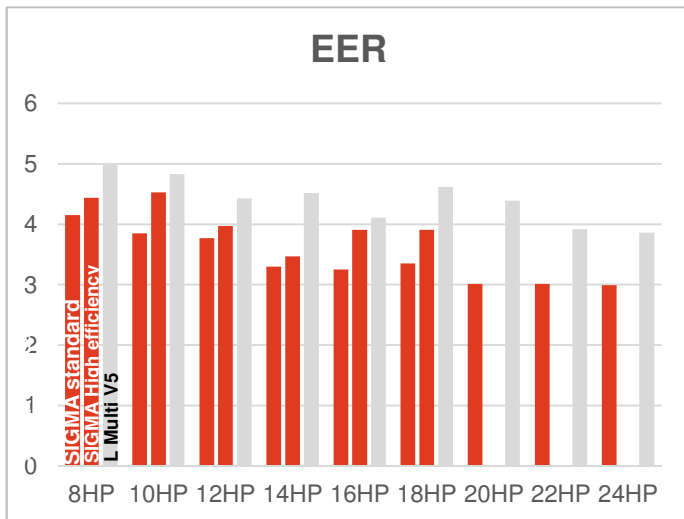
### Heat Recovery - Range comparison

- HITACHI :** ✓ Standard (FSXNSE) 8 to 24 HP
- ✓ High performance (FSXNPE) 5 to 18 HP



**Competitor L :** ✓ Multi V5 ( ARUM LTE 5 ) 8 to 24 HP

### Performance comparison



- Competitor performance subject to caution : values are with customized ducted units . Tests with cassettes have much lower values
- Example : ARUM200LTE5, EER with duct : 4,39 but only 3,5 with cassettes

### Additional informations

- Hitachi provide **for free** : electricity peak control and low noise on signal compare to D which need an additional PCB
- Hitachi Multi CH box have **flare connections** to indoor units compared to brazed for L
- Multi CH box **up to 16 ports** compared to 6 ports for L

### Keys benefits

- ✓ Exclusif 5 & 6 HP
- ✓ Higher efficiency with real indoor units

\*\*\* Preliminary data \*\*\*



**SET FREE  $\Sigma$**

**HITACHI vs COMPETITOR L**

## Design

**Hitachi Set Free sigma**



**Competitor L**

## Specification table

HP		8			10			12			14		
Manufacturer		HITACHI	HITACHI	L	HITACHI	HITACHI	L	HITACHI	HITACHI	L	HITACHI	HITACHI	L
Type		Standard	High performance	Multi V5	Standard	High performance	Multi V5	Standard	High performance	Multi V5	Standard	High performance	Multi V5
Outdoor unit reference		RAS-8FSXNSE	RAS-8FSXNPE	ARUM80LTE5	RAS-10FSXNSE	RAS-10FSXNPE	ARUM100LTE5	RAS-12FSXNSE	RAS-12FSXNPE	ARUM120LTE5	RAS-14FSXNSE	RAS-14FSXNPE	ARUM140LTE5
Cooling Cap	kW	22,4	22,4	22,4	28	28	28	33,5	33,5	33,6	40	40	39,1
Heating Cap	kW	25	25	25,2	31,5	31,5	31,5	37,6	37,6	37,8	45	45	44,1
EER		4,15	4,44	4,99	3,85	4,53	4,83	3,77	3,97	4,43	3,3	3,47	4,52
COP		4,75	4,92	5,64	4,57	4,74	5,69	4,1	4,68	4,91	3,74	4,15	4,82
Sound Power	dB(A)	80	77	77	82	82	78	82	83	79	85	85	82
Height	mm	1725	1725	1690	1725	1725	1690	1725	1725	1690	1725	1725	1690
Width	mm	959	1219	930	959	1219	930	959	1219	930	1219	1219	1240
Depth	mm	784	784	760	784	784	760	784	784	760	784	784	760
Weight	kg	210	274	198	210	278	215	233	282	215	289	292	237

HP		16			18			20		22		24	
Manufacturer		HITACHI	HITACHI	L	HITACHI	HITACHI	L	HITACHI	L	HITACHI	L	HITACHI	L
Type		Standard	High performance	Multi V5	Standard	High performance	Multi V5	Standard	Multi V5	Standard	Multi V5	Standard	Multi V5
Outdoor unit reference		RAS-16FSXNSE	RAS-16FSXNPE	ARUM160LTE5	RAS-18FSXNSE	RAS-18FSXNPE	ARUM180LTE5	RAS-20FSXNSE	ARUM200LTE6	RAS-22FSXNSE	ARUM220LTE5	RAS-24FSXNSE	ARUM240LTE9
Cooling Cap	kW	45	45	44,8	50	50	50,4	56	56	61	61,6	67	67,2
Heating Cap	kW	50	50	50,4	56	56	56,7	63	63	69	69,3	77,5	74,3
EER		3,25	3,91	4,11	3,35	3,91	4,62	3,01	4,39	3,01	3,92	2,99	3,86
COP		3,37	3,87	4,36	3,29	3,74	4,07	3,35	3,93	3,19	3,72	3,4	3,62
Sound Power	dB(A)	85	85	83	86	86	85	86	86	84	86	86	88
Height	mm	1725	1725	1690	1725	1725	1690	1725	1690	1725	1690	1725	1690
Width	mm	1219	1609	1240	1219	1609	1240	1609	1240	1609	1240	1609	1240
Depth	mm	784	784	760	784	784	760	784	760	784	760	784	760
Weight	kg	332	369	237	333	384	300	382	300	396	300	397	310





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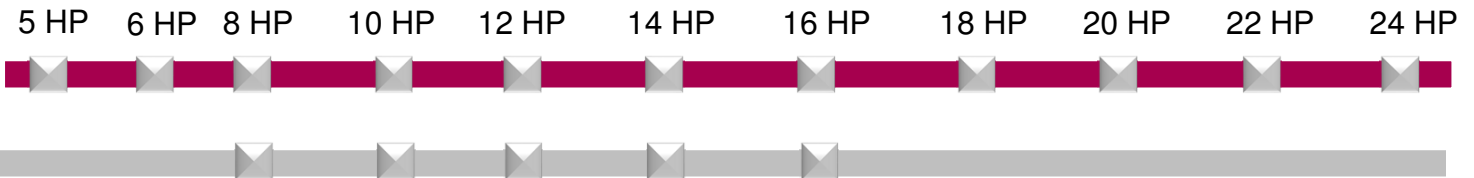
## HITACHI SET FREE $\Sigma$ vs COMPETITOR P

VRF – Feb 2018

# HITACHI

### Heat recovery - Range comparison

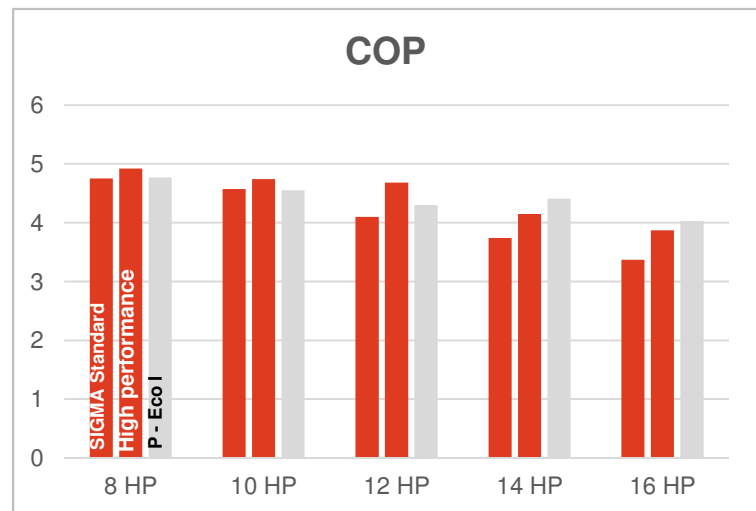
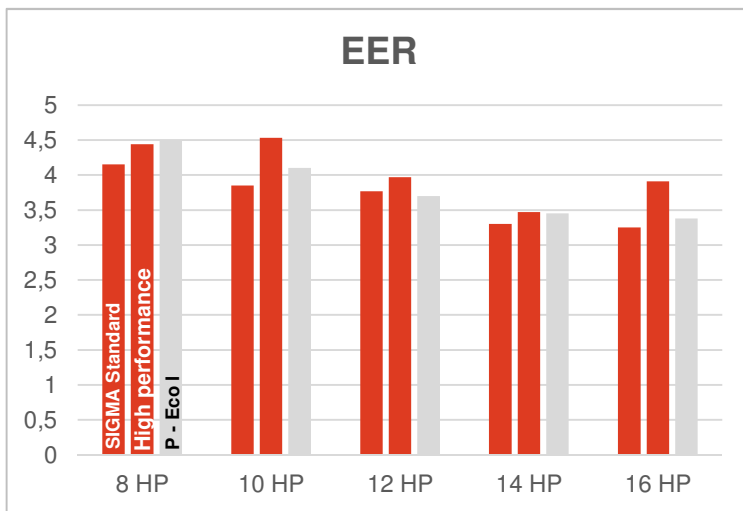
- ✓ Standard (FSXNSE) 8 to 24 HP
- ✓ High performance (FSXNPE) 5 to 18 HP



Competitor P : ✓ Eco I ( MF2E8 ) 8 to 16 HP

- Exclusive range with 5 & 6 HP

### Performance comparison



- High efficiency FSXNPE has **better EER**

### Additional informations

- Hitachi provide **for free** : electricity peak control and low noise on signal compare to P which need an additional PCB
- Hitachi Multi CH box have **flare connections** to indoor units compared to brazed for P
- Multi CH box **up to 16 ports** compared to 8 ports for P

### Keys benefits

✓ **Wider range : 5 to 24 HP**

✓ **Higher efficiency**

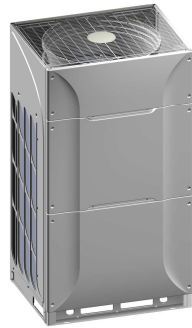


**SET FREE  $\Sigma$**

**HITACHI vs COMPETITOR P**

## Design

**Hitachi Set Free sigma**



**Competitor P**

## Specification table

HP		8			10			12			14			16		
Manufacturer		HITACHI	HITACHI	P	HITACHI	HITACHI	P	HITACHI	HITACHI	P	HITACHI	HITACHI	P	HITACHI	HITACHI	P
Type		Standard	High performance	Ecol	Standard	High performance	Ecol	Standard	High performance	Ecol	Standard	High performance	Ecol	Standard	High performance	Ecol
Outdoor unit reference		RAS-8FSXNSE	RAS-8FSXNPE	U-8MF2E8	RAS-10FSXNSE	RAS-10FSXNPE	U-10MF2E8	RAS-12FSXNSE	RAS-12FSXNPE	U-12MF2E8	RAS-14FSXNSE	RAS-14FSXNPE	U-14MF2E8	RAS-16FSXNS	RAS-16FSXNPE	U-16MF2E8
Cooling Cap	kW	22,4	22,4	22,4	28	28	28	33,5	33,5	33,5	40	40	40	45	45	45
Heating Cap	kW	25	25	25	31,5	31,5	31,5	37,6	37,6	37,6	45	45	45	50	50	50
EER		4,54	<b>4,75</b>	4,5	<b>4,22</b>	<b>4,94</b>	4,1	<b>4,13</b>	<b>4,33</b>	3,7	3,43	<b>3,95</b>	3,45	3,47	<b>4,26</b>	3,48
COP		<b>5,17</b>	<b>5,37</b>	4,77	<b>5,09</b>	<b>5,18</b>	4,55	<b>4,49</b>	<b>5,08</b>	4,3	<b>3,6</b>	<b>4,54</b>	4,41	<b>3,55</b>	<b>4,21</b>	4,03
Sound Power	dB(A)	80	77	72	82	82	74	82	83	76	85	85	77	85	85	77
Height	mm	1725	1725	1758	1725	1725	1758	1725	1725	1758	1725	1725	1758	1725	1725	1758
Width	mm	959	1219	1000	959	1219	1000	959	1219	1000	1219	1219	1000	1219	1609	1000
Depth	mm	784	784	930	784	784	930	784	784	930	784	784	930	784	784	930
Weight	kg	<b>195</b>	258	269	<b>195</b>	262	269	<b>215</b>	263	314	<b>271</b>	273	322	<b>314</b>	350	322