

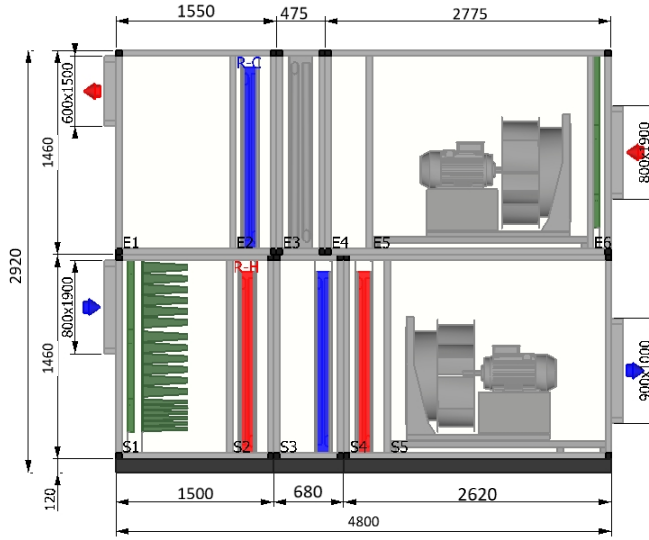
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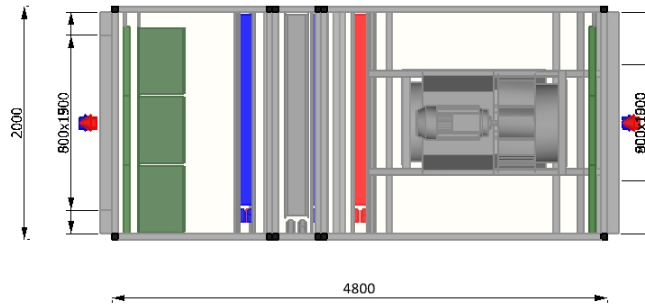
## UNIT INFORMATIONS

AHU name	Dehumidifier FHNA 250	
AHU code	1	
Revision no	0	
Selection Type	Pool Dehumidifying Unit	
Serie name	KS-50	
Model name	FKS - 25	
Execution Type	Outdoor	
Working Condition	Designed for Wet Condition	
Mixing Ratio	0 [%]	
ErP Identification Code	NRVU-BVU	
Energy Efficiency Class	D	↺

Front drawing



Top Drawing



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**UNIT INFORMATIONS**

<b>Supply Air Volume Flow Rate</b>	<b>Internal sheet</b>	<b>Width / Height / Length</b>
25.200 [m <sup>3</sup> /h]	Galvanized - 0,8 mm	2000 * 2920 * 4800 [mm]
<b>Supply Air Volume Flow Rate</b>	<b>External sheet</b>	<b>Weight</b>
7.01 [m <sup>3</sup> /s]	PVC Galvanized - 0,8 mm	2.765 [kg]
<b>Exhaust air volume flow rate</b>	<b>Insulation material</b>	<b>Quantity</b>
25.200 [m <sup>3</sup> /h]	Rockwool (50 mm - 70 kg/m <sup>3</sup> )	1 [pcs]
<b>Exhaust Air Volume Flow Rate</b>	<b>Corner profile</b>	<b>Place</b>
7.01 [m <sup>3</sup> /s]	Pres Aliminyum Profil - 50 mm	GEORGIA
<b>Supply Air Vel. in Casing Cross Section</b>	<b>Inner profile</b>	<b>Design Outdoor Temperature</b>
2.23 [m/s]	Pres Takviye - 50 mm	-3.00 [°C]
<b>Exhaust air vel. in casing cross section</b>	<b>Base</b>	<b>Design Outdoor Humidity</b>
2.23 [m/s]	Galvanised - 120mm	90 [%]
<b>Face velocity on coils</b>	<b>Panel Thickness</b>	<b>Air density</b>
2,61 [m/s]	50 [mm]	1,18 [kg/m <sup>3</sup> ]

**Fans**

	Supply	Exhaust	
<b>Fan name</b>	Nicotra Gebhardt - RLM 56-7180-4W-30 -58 - (x1)	Nicotra Gebhardt - RLM 56-7180-4W-28-58-C - (x1)	-
<b>Pressure drop total</b>	1.462	1.309	[Pa]
<b>Speed</b>	1538	1482	[rpm]
<b>Motor power</b>	18.5	15	[kW]

**Others**

<b>Heating capacities</b>	S2 - 164.19 , S4 - 280.59	[kW]
<b>Cooling capacities</b>	E2 - 164.19 , S3 - 162.50	[kW]
<b>Fine filters</b>	E6 - G4 , S1 - F7	-
<b>Pre filters</b>	S1 - G4	-

**Notes**

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### Sound Power Levels (dB)

	125[Hz]	250[Hz]	500[Hz]	1000[Hz]	2000[Hz]	4000[Hz]	8000[Hz]	LwA-tot
Airborne Sound Power Level	57	42	39	36	27	23	17	38 db(A)
Outlet supply air induct sound power level	96	92	91	98	93	82	76	94 db(A)
Inlet supply air induct sound power level	79	76	69	69	63	51	55	64 db(A)
Outlet exhaust air induct sound power level	95	91	90	97	92	81	75	93 db(A)
Inlet exhaust air induct sound power level	82	79	72	72	66	54	58	70 db(A)
Absorbed Power Heat Pipe Heat Recovery	78	75	68	68	61	50	54	66 kW

### E1 - Empty section

Air volume flow rate	25.200 [m³/h]
Cellular pressure drop	0 [Pa]
Pressure drop accesories	0 [Pa]
Pressure drop total	0 [Pa]
Accesories	
Notes	

#### Flange

Dimensions (W * H)	1500 * 600	[mm]
Pressure drop	0.0	[Pa]
Capacity	91	[%]
Air volume flow rate / Velocity	23.000	[m³/h]
		7.1 [m/s]

### E3 - Empty section

Air volume flow rate	25.200 [m³/h]
Cellular pressure drop	0 [Pa]
Pressure drop accesories	0 [Pa]
Pressure drop total	0 [Pa]
Accesories	Condenser
Notes	

### E4 - Empty section

Air volume flow rate	25.200 [m³/h]
Cellular pressure drop	0 [Pa]
Pressure drop accesories	0 [Pa]
Pressure drop total	0 [Pa]
Accesories	
Notes	Automation panel with frequency inverter, humidity sensing, weekly program, MCC panel, DDC panel, package program.

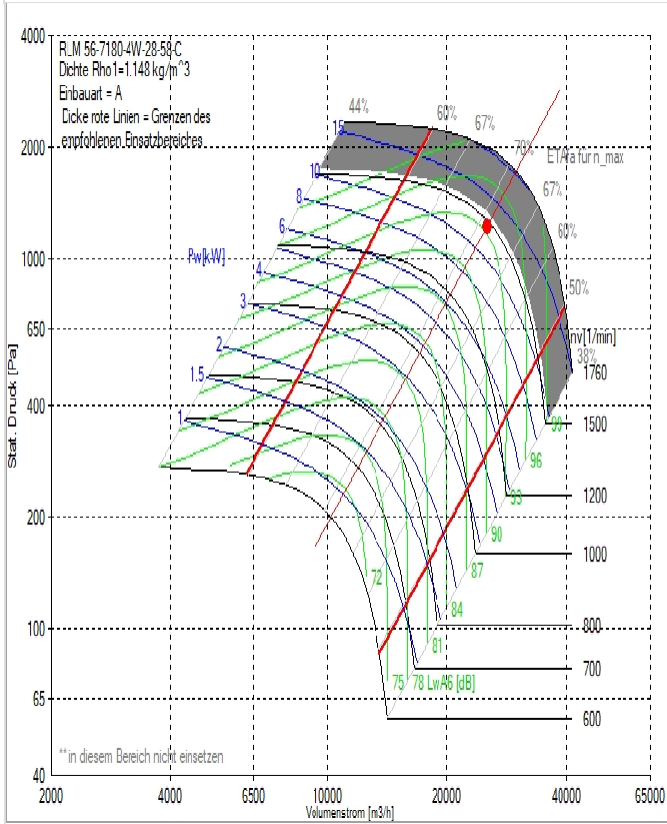
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### E5 - Fan section [Exhaust Line]

Air volume flow rate	25.200 [m³/h]	Manufacturer	NicotraGebhardt
External static pressure	800 (80Hp) [Pa]	Fan Count	1
Internal static pressure	474 [Pa]	Model	RLM 56-7180-4W-28-58-C
Total Static Pressure	1.224 [Pa]	Efficiency	75 [%]
Dynamic pressure	85 [Pa]	Eff. for Uni-Direct.Units with no filters	0 [%]
Pressure drop total	1.309 [Pa]	Outlet velocity	12.15 [m/s]

The fan system effect is taken into account in the fan performances



Speed	1482 [rpm]
Maximum Speed	1520 [rpm]
Shaft power	12.2 [kW]
Specific Fan Power (SFP factor)	1992.86 [W/(m³/s)]
Int.Sp.Fan Pw.of vent.comp. (SFPint)	61.02 [W/(m³/s)]
Electrical motor input power	13.8 [kW]
Freq. Inv. power	0.69 [kW]
Total Power	14.49 [kW]
Total Efficiency	61.09 [%]

#### Motor

Manufacturer	GAMAK
Model / Type	GM3E 160 L 4 / IE3
Speed	1500 [rpm]
Power	15 [kW]
Current	29 [A]
Voltage / Frequency	3x 400 / 50 [V] / [Hz]

#### Sound Power Levels (dB)

	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	LwA-tot
Inlet side	93	88	85	83	80	75	69	88
Outlet side	96	90	89	89	86	78	74	93

Accessories	
Notes	



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<b>E6 - Filter section</b>			
Air volume flow rate		25.200	[m <sup>3</sup> /h]
Air Velocity on Filters		2.68	[m/s]
Filter type	Panel filters / G4		
Energy Efficiency Class	-		
Pressure drop (Clean / Dirty / Average)		40 / 130 / 85	[Pa]
Design pressure drop		85	[Pa]
Cellular pressure drop		0	[Pa]
Pressure drop accesories		0	[Pa]
Pressure drop total		85	[Pa]
Accesories	Filter Clips, Filter Housing		
Notes			
Filter 1 (Width*Height*Depth)-(Quantity)	592 * 592 * 50	[mm]	6 [pcs]
Filter 2 (Width*Height*Depth)-(Quantity)	592 * 287 * 50	[mm]	3 [pcs]
<b>Flange</b>			
Dimensions (W * H)	1900 * 800		[mm]
Pressure drop		0.0	[Pa]
Capacity		91	[%]
Air volume flow rate / Velocity	23.000	[m <sup>3</sup> /h]	4.2 [m/s]

<b>S1 - Filter section</b>			
Air volume flow rate		25.200	[m <sup>3</sup> /h]
Air Velocity on Filters		1.34	[m/s]
Filter type	Bag filters / F7		
Energy Efficiency Class	-		
Pressure drop (Clean / Dirty / Average)		80 / 200 / 140	[Pa]
Design pressure drop		80	[Pa]
Cellular pressure drop		0	[Pa]
Pressure drop accesories		85	[Pa]
Pressure drop total		165	[Pa]
Accesories	Filter Clips, Filter Housing		
Notes			
Filter 1 (Width*Height*Depth)-(Quantity)	592 * 592 * 600	[mm]	6 [pcs]
Filter 2 (Width*Height*Depth)-(Quantity)	592 * 287 * 600	[mm]	3 [pcs]
Filter 3 (Width*Height*Depth)-(Quantity)	592 * 592 * 400	[mm]	6 [pcs]
Filter 4 (Width*Height*Depth)-(Quantity)	592 * 287 * 400	[mm]	3 [pcs]

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## Flange

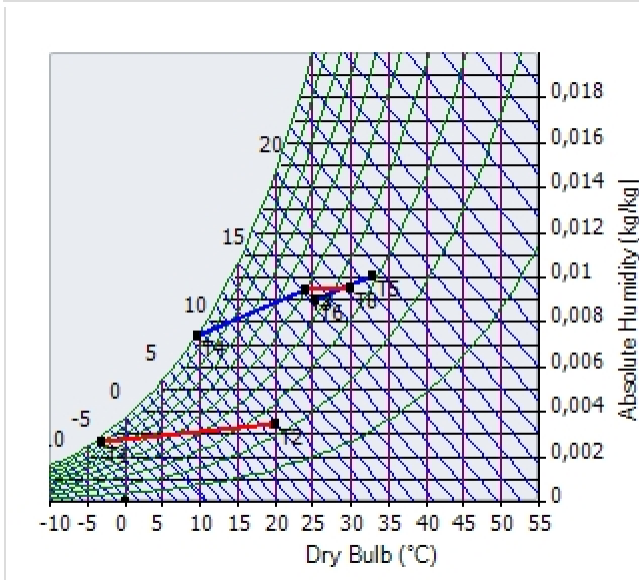
Dimensions (W * H)	1900 * 800			[mm]
Pressure drop				0.0 [Pa]
Capacity				91 [%]
Air volume flow rate / Velocity	23.000	[m <sup>3</sup> /h]	4.2	[m/s]

## Panel filter

Filter type	Panel filters / G4			
Energy Efficiency Class	Not Applicable			
Pressure drop (Clean / Dirty / Average)				40/130/85 [Pa]
Design pressure drop				85 [Pa]
Air Velocity on Filters				2.68 [m/s]
Filter 3 (Width*Height*Depth)-(Quantity)	592 * 592 * 50	[mm]	6	[pcs]
Filter 4 (Width*Height*Depth)-(Quantity)	592 * 287 * 50	[mm]	3	[pcs]

## S2 / E2 - Hydraulic Recuperator (Heat pipe heat recovery)

Manufacturer	DBM			
Exchanger designation supply	Cu-Al-FeZn P3012AC 15R-52T-1710A-2.0pa 30C 1 1/2"			
Exchanger designation exhaust	Cu-Al-FeZn P3012AR 15R-52T-1710A-2.0pa 30C 1 1/2"			
Air volume flow rate (Supply)	25200 [m3/h]	Accessories		
Air volume flow rate (Exhaust)	25200 [m3/h]			
Cellular pressure drop	0 [Pa]	Notes		
Pressure drop accesories	0 [Pa]			
Pressure drop total	292 [Pa]			



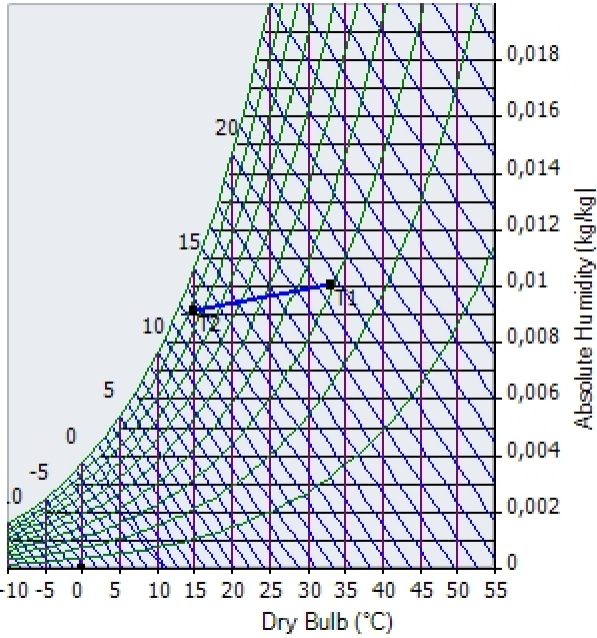
Winter	Supply		Exhaust	
Temp. (In/Out)	-3.00	20.06	24.00	9.65 [°C]
Rel. Humidity (In/Out)	90	23.5	50	99.71 [%]
Press. Drop (Wet/Dry)	292 / 292		389 / 304 [Pa]	
Efficiency	68		68 [%]	
Capacity	164.19		164.19 [kW]	
Flow rate	7990		7990 [l/s]	
Fluid Velocity	0.68		0.68 [m/s]	
Summer	Supply		Exhaust	
Temp. (In/Out)	33.00	25.50	24.00	29.91 [°C]
Rel. Humidity (In/Out)	31	43.64	50	35.31 [%]
Press. Drop (Wet/Dry)	315 / 315		312 / 312 [Pa]	
Efficiency	68		68 [%]	
Capacity	51.42		51.42 [kW]	
Flow rate	7250		7250 [l/s]	
Fluid Velocity	0.62		0.62 [m/s]	

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**S3 - Coil section [DX]**

Manufacturer	Friterm		
Coil type designation	40x35 1/2 CS -38T-4R-1710A-2,1P-25NC		
Air volume flow rate	25.200 [m <sup>3</sup> /h]	Capacity	162.50 [kW]
Cellular pressure drop	0 [Pa]	Face velocity on coils	2.61 [m/s]
Pressure drop accesories	0 [Pa]	Material	Copper/Aluminium
Pressure drop total	87 [Pa]	Fin / Tube thickness	0.12 0.35 [mm]
Area	329.55 [m <sup>2</sup> ]	Tube Diameter(Inner/Outer)	12.6 13.3 [mm]
Accessories			
Notes	Dehumidifier Capacity (HP) 110 kg/h,		

**Air side**

	Inlet	Outlet	
Temperature	33.00	14.89	[°C]
Relative humidity	31	86.23	[%]
Specific Humidity	9.67	8.97	[g/kg]
Enthalpy	57.62	37.36	[kJ/kg]
Eliminator pressure drop			0 [Pa]
	Wet	Dry	
Pressure drop	87	81	[Pa]
Total Pressure Drop	87	81	[Pa]

**Fluid side**

	Inlet	Outlet	
Temperature	5.00	45.00	[°C]
Flow rate			25.200 [m <sup>3</sup> /h]
Pressure drop			20.4 [kPa]
Velocity			0.3 [m/s]
Connection			80 - 4 1/8" Cu [mm/inch]
Fluid type			R410A

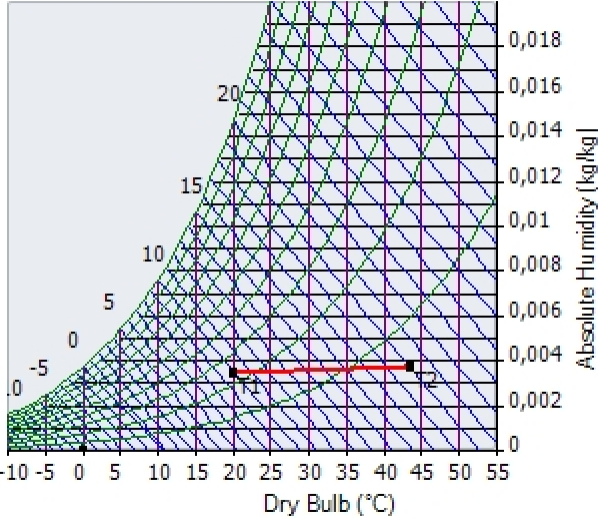


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**S4 - Coil section [Heating]**

Manufacturer	Vistherm		
Coil type designation	40x35 1/2 CS -38T-2R-1710A-3,2P-19NC		
Air volume flow rate	25.200 [m <sup>3</sup> /h]	Capacity	280.59 [kW]
Cellular pressure drop	0 [Pa]	Face velocity on coils	2.61 [m/s]
Pressure drop accesories	0 [Pa]	Material	Copper/Aluminium
Pressure drop total	78 [Pa]	Fin / Tube thickness	0.12 0.35 [mm]
Area	568.26 [m <sup>2</sup> ]	Tube Diameter(Inner/Outer)	12.6 13.3 [mm]
Accessories			
Notes			

**Air side**

	Inlet	Outlet	
Temperature	20.06	43.65	[°C]
Relative humidity	23.5	6.28	[%]
Specific Humidity	3.36	3.36	[g/kg]
Enthalpy	28.57	52.43	[kJ/kg]
Pressure drop			33 [Pa]

**Fluid side**

	Inlet	Outlet	
Temperature	90.00	70.00	[°C]
Flow rate			8859 [dm <sup>3</sup> /h]
Pressure drop			9.87 [kPa]
Velocity			1.04 [m/s]
Connection			48.3 - 1 1/2" [mm/inch]
Fluid type			Pure fluids



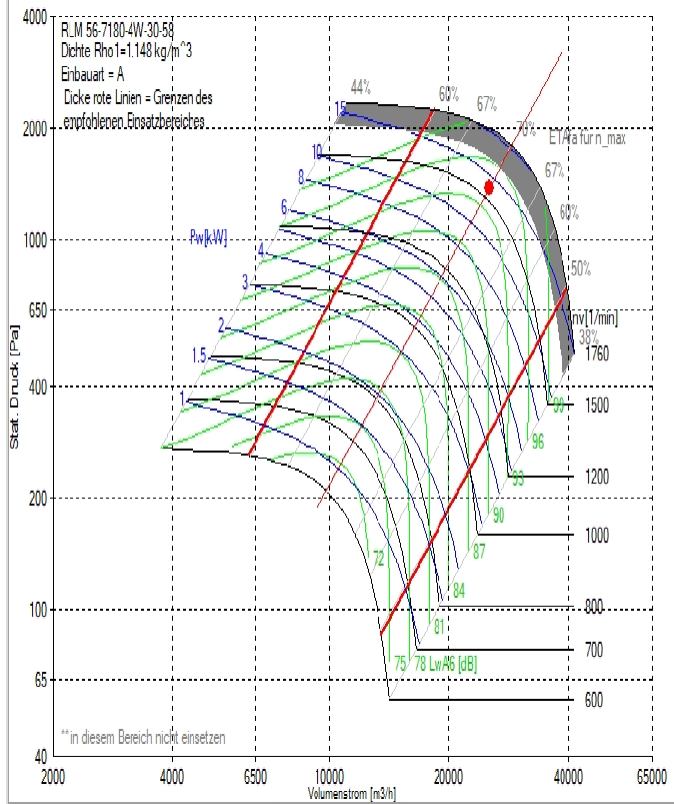
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## S5 - Fan section [Supply Line]

Air volume flow rate	25.200 [m³/h]
External static pressure	800 (80Hp) [Pa]
Internal static pressure	577 [Pa]
Total Static Pressure	1.377 [Pa]
Dynamic pressure	85 [Pa]
Pressure drop total	1.462 [Pa]

The fan system effect is taken into account in the fan performances



Manufacturer	Nicotra Gebhardt
Fan Count	1
Model	RLM 56-7180-4W-30-58
Efficiency	75 [%]
Eff. for Uni-Direct.Units with no filters	0 [%]
Outlet velocity	12.15 [m/s]
Speed	1538 [rpm]
Maximum Speed	1640 [rpm]
Shaft power	13.7 [kW]
Specific Fan Power (SFP factor)	2235.71 [W/(m³/s)]
Int.Sp.Fan Pw.of vent.comp. (SFPint)	183.07 [W/(m³/s)]
Electrical motor input power	15.3 [kW]
Freq. Inv. power	0.76 [kW]
Total Power	16.06 [kW]
Total Efficiency	55.32 [%]

<b>Motor</b>	
Manufacturer	GAMAK
Model / Type	GM3E 160 L 2 / IE3
Speed	3000 [rpm]
Power	18.5 [kW]
Current	31.5 [A]
Voltage / Frequency	3x 400 / 50 [V] / [Hz]

Sound Power Levels (dB)								
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	LwA-tot
Inlet side	94	89	86	84	81	76	70	89
Outlet side	97	91	90	90	87	79	75	94

Accessories	
Notes	



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### Module Dimensions And Weights

Sequence	Cells	Width[mm]	Height[mm]	Length[mm]	Weight[kg]
1	S1 , S2	2000	1460	1500	310
2	S3	2000	1460	680	340
3	S4 , S5	2000	1460	2620	945
4	E1 , E2	2000	1460	1550	250
5	E3	2000	1460	475	70
6	E4 , E5 , E6	2000	1460	2775	850
				<b>Total</b>	<b>2637</b>

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