



# HAINING YINUO ELECTRIC CO., LTD

ADDRESS: Zhongle Village, Xieqiao Town, Haining City, Zhejiang Province, China

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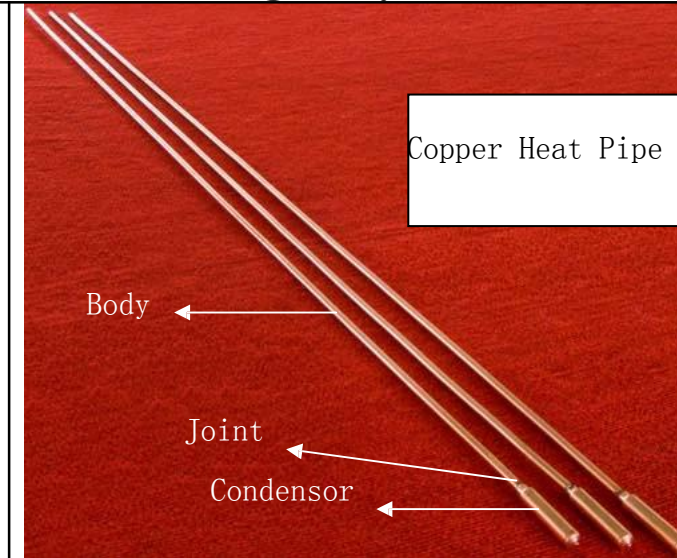
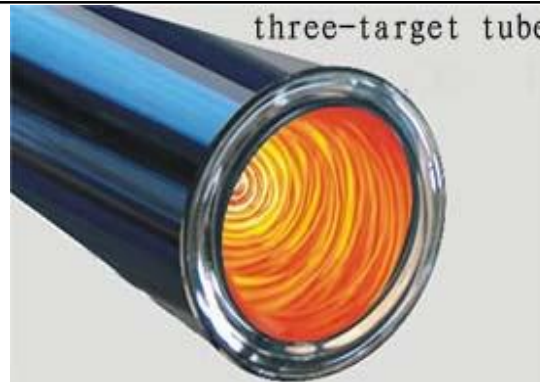
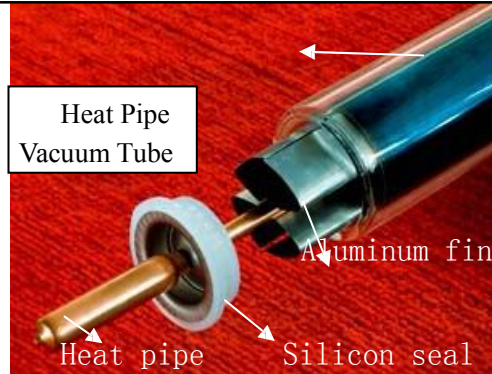
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## INLIGHT SPLIT HEAT PIPE SWH(Double Heat-exchanger System)



<b>Vacuum Tube Structure</b>		All-glass double-tube co-axial structure
<b>Glass Material</b>		High borosilicate 3.3 glass
<b>External Tube Diameter &amp; Thickness</b>		$\Phi=47\pm 0.7\text{mm}$ &=1.6mm, $\Phi=58\pm 0.7\text{mm}$ &=1.6mm, $\Phi=70\pm 0.7\text{mm}$ &=2.0mm
<b>Internal Tube Diameter &amp; Thickness</b>		$\Phi=37\pm 0.7\text{mm}$ &=1.6mm, $\Phi=47\pm 0.7\text{mm}$ &=1.6mm, $\Phi=58\pm 0.7\text{mm}$ &=1.6mm
<b>Pipe Length</b>		800mm, 1200mm, 1500mm, 1600mm, 1800mm, 1900mm, 2000mm, 2100mm
<b>Absorbing Coating</b>	<b>Structure</b>	Cu/SS-ALN(H)/SS-ALN(L)/ALN
	<b>Sediment Method</b>	3 target magnetron sputtering plating
	<b>Specific Absorption</b>	as=0.93~0.96(AM1.5)
	<b>Emission Ratio</b>	eh=0.04~0.06(80±5)
<b>Vacuum Tightness</b>		$P \leq 5.0 \times 10^{-3} \text{Pa}$
<b>Idle Insulation Property</b>		Y=260~300m2./KW
<b>Solar Irradiation</b>	H=4.1~4.4MJ/m2	H=3.74~4.2MJ/m2
	H=3.1~3.4MJ/m2	H=2.9~3.2MJ/m2
<b>Average Heat Loss Coefficient</b>		ULT=0.4~0.6W/ (m2.)

Item	Heat Pipe
<b>Condensor / <math>\Phi * L * T</math> (mm)</b>	14*1.0
<b>Body / <math>\Phi * L * T</math> (mm)</b>	8*0.7
<b>Working Temperature (°C)</b>	(-40~217
<b>Heat Transfer Power (w)</b>	150~180
<b>Start-up Temperature(°C)</b>	25
<b>Start-up Rate (s)</b>	30
<b>Axis Temperature Difference (°C)</b>	1~4
<b>Heat Transfer Coefficient (w/m.k)</b>	$(1.6\sim 2) * 10^4$
<b>Heat Resistance(°C/w)</b>	0.02
<b>Obliquity (°)</b>	15°~90°
<b>Vacuum Tightness (Pa)</b>	$4 * 10^{-3}$
<b>Joint Bearing Pressure (Mpa)</b>	4



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## SPF Test Data of INLIGHT Heat Pipe Solar Collector

Max. Test Pressure	1.1 Mpa
Rated Flow Rate ( L/h)	160 L/h
Zero-loss Collector Efficiency ( $\eta_{0a}$ aperture area)	0.745
Heat Loss Coefficient $a_1$ (W/m <sup>2</sup> K aperture area)	1.99
Heat Loss Coefficient $a_2$ (W/m <sup>2</sup> K <sup>2</sup> )	0.0087
Stagnation Temperature (30 °C/1000W/M <sup>2</sup> )	217 °C
Incidence Angle Modifier $K_{0b}$ ( $\theta$ )	0.93 ( $\theta=50^\circ$ )





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**Pressurized Water Storage Tank**



**Sectional View of Pressurized Tank**



**Pressurized Tank**



**White Color Shell**



**Gray PVDF shell**



**Stainless shell**

**Pressurized Tank:** Advanced welding technique, thickened food-grade stainless steel and high-density PU insulation give the tank more than 30 years lifespan  
Inside copper coil connecting with heat-pipe collector makes a closed-loop which makes efficient heat exchange between solar collector and water storage tank



**Foam Pump station**



**Metal Pump Station**



**Thermostat Electrical Heater**



**Anode Magnesium**



**T/P & Safety Valve**

**Solar Pump Station:** Integrated device automatically controls the intelligent operation of split solar water heating system

**Expansion Vessel:** A small tank used in closed-loop solar water heating systems to absorb excess water pressure

**Thermostat Electrical Heater:** Backup in solar system for continuous hot water supply in cloudy or rainy days

**Anode Magnesium:** With the anode consumption to protect solar system from water scale and erosion

**T&P and Safety Valve:** With related pressure to protect solar system from overheating and excess pressure



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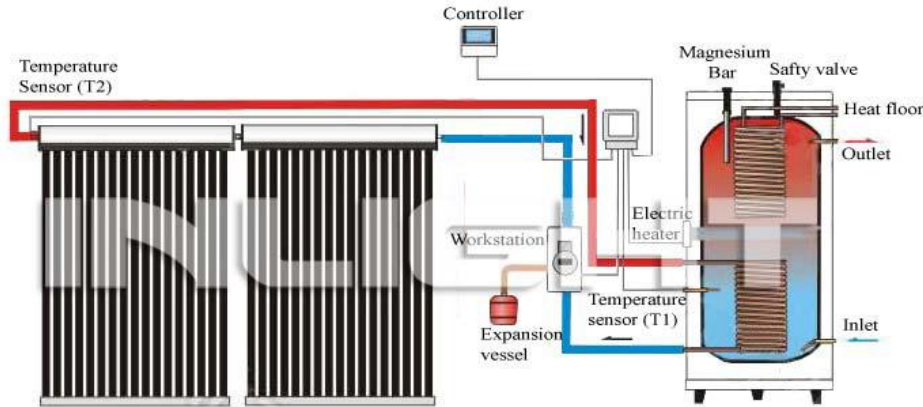
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## Features & Advantages:

- ◆ The solar collector is separated with water storage tank, water storage tank can be located anywhere
- ◆ The solar collector can be carried separately and mounted on buildings in different styles and structures
- ◆ Anti-freezing fluid inside copper heat pipe tubes makes super heat transmission and anti-freezing effect
- ◆ Intelligent solar pump station with more functions makes a more reliable and convenient solar water heating system
- ◆ Mechanical parts connection, withdrawal of one or several tubes will not drain the closed loop or water storage tank
- ◆ System is equipped with electric backup heating device which ensures constant hot water supply in rainy or snowy days
- ◆ The test pressure for solar system is 11 bar, pressurized system makes more safe and comfortable water use.
- ◆ Closed-loop running with anti-freezing liquid makes efficient heat conduction without freezing in pipeline
- ◆ Long lifespan solar water heating system, nearly no maintenance needed after installation and debugging
- ◆ INLIGHT solar collector has been certified with Solar Key mark and SRCC and is always designed for the best



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PHOTO	Parts & Specification (Closed-loop System with double heat-exchange coil):
	<b>1. Inner Storage Tank:</b> Food-grade stainless steel SUS304-2B 1.5-2.0mm (150-300L), 2.0-2.5mm (400-1000L)
	<b>2. Heat-exchange Coil:</b> Double heat-exchange copper coil $\Phi 12 \times 1.0$ mm
	<b>3. Tank Exterior Shell:</b> High-quality white coated color steel 0.5-0.6mm
	<b>4. Tank Insulation:</b> High-density polyurethane integrated foam-forming with lasting heat preservation
	<b>5. Vacuum Tube:</b> Three-target vacuum tube, anti-freezing heat pipe, Aluminum fin and heat-resisting silicon seal
	<b>6. Heat-pipe Manifold:</b> Red copper header $\Phi 35 \times 1.0$ mm, Aluminum alloy shell 2mm, high-density rock wool insulation
	<b>7. Solar Pump Station &amp; Expansion vessel:</b> Single pipeline pump station SP106 or Double pipeline pump station SP228 , high pressure expansion vessel 5L-24L
	<b>8. Collector Bracket:</b> Gray/ black aluminum alloy 1.8mm, universal bracket suitable for slope/ flat roof or wall installation
	<b>9. Accessories:</b> Thermostat electrical heater with regulator, Anode magnesium, T/P & Safety valve, copper connectors
	<b>10. Rated Working Pressure:</b> 6.0 Bar
	<b>11. Anti-freezing Weather:</b> < (-)40 °C

Item No.	Heat Pipe Solar Collectors		Aperture Area	SUS304 Tank	Pump Station	Expansion Vessel	Container Loading Sets		
	Item No.	Panels					20G P	40G P	40H Q
ILSP2-150-15HP	ILHC-5815H-F	1 Pcs	1.4m <sup>2</sup>	150L	SP228	EV5	38	77	93
ILSP2-150-18HP	ILHC-5818H-F	1 Pcs	1.68m <sup>2</sup>	150L	SP228	EV5	36	71	86
ILSP2-200-20HP	ILHC-5820H-F	1 Pcs	1.87m <sup>2</sup>	200L	SP228	EV8	30	60	73
ILSP2-200-24HP	ILHC-5824H-F	1 Pcs	2.24m <sup>2</sup>	200L	SP228	EV8	29	59	71
ILSP2-250-25HP	ILHC-5825H-F	1 Pcs	2.34m <sup>2</sup>	250L	SP228	EV8	25	50	61
ILSP2-250-30HP	ILHC-5830H-F	1 Pcs	2.8m <sup>2</sup>	250L	SP228	EV8	24	48	59
ILSP2-300-30HP	ILHC-5830H-F	1 Pcs	2.8m <sup>2</sup>	300L	SP228	EV12	22	44	53
ILSP2-300-36HP	ILHC-5818H-F	2 Pcs	3.37m <sup>2</sup>	300L	SP228	EV12	20	40	49
ILSP2-400-40HP	ILHC-5820H-F	2 Pcs	3.74m <sup>2</sup>	400L	SP228	EV18	17	33	40
ILSP2-400-48HP	ILHC-5824H-F	2 Pcs	4.49m <sup>2</sup>	400L	SP228	EV18	16	33	40
ILSP2-500-50HP	ILHC-5825H-F	2 Pcs	4.67m <sup>2</sup>	500L	SP228	EV24	14	28	35
ILSP2-500-60HP	ILHC-5830H-F	2 Pcs	5.61m <sup>2</sup>	500L	SP228	EV24	14	27	33
ILSP2-1000-120HP	ILHC-5830H-F	4 Pcs	11.2m <sup>2</sup>	1000L	SP228	EV24*2	6	13	16



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## 1. Pressurized Heat-pipe Solar Collector

PHOTO		Parts & Specification (Closed-loop System with double heat-exchange coil):							
		1. <b>Direct-flow Header:</b> High quality red copper Φ35*1.0mm, inlet & outlet Φ22mm							
		2. <b>Manifold Shell:</b> High-quality black/ gray aluminum alloy 2mm							
		3. <b>Insulation:</b> High-density compression-molded rock wool 50mm							
		4. <b>Heat-pipe Tube:</b> Three-target coated vacuum tube, Φ14 condenser copper heat pipe, Aluminum fin, silicon tube seal							
		5. <b>Mounting Frame:</b> Black/ gray aluminum alloy 1.8mm, universal bracket suitable for roof or exterior wall installation							
		6. <b>Accessories:</b> Thermal paste, copper connectors, Stainless fasteners, Heat-resisting rubber seal, adjustable tube holder							
		7. <b>Test Pressure:</b> 11.0 Bar							
		8. <b>Collector Tilt Angle:</b> 20°~90°(Vertical/ horizontal shift: -5°/-5°)							
		9. <b>Hail Resistance:</b> ≥ Φ25 mm (Tilt angle ≥ 40°)							
		10. <b>Anti-freezing:</b> (-) 40 °C							
Item No.	Solar Heat-pipe Tube		Aperture Area	Collector Size L*W	Fluid Liter	Container Loading Sets			
	Tube Nos.	Tube Size (D*L)				20G P	40G P	40H Q	
ILHC-5812H-F	12	Φ58*1800mm	1. 12m <sup>2</sup>	1950*960mm	0.8L	162	324	394	
ILHC-5815H-F	15	Φ58*1800mm	1. 4m <sup>2</sup>	1950*1185mm	0.9L	134	268	325	
ILHC-5818H-F	18	Φ58*1800mm	1. 68m <sup>2</sup>	1950*1410mm	1.1L	105	210	255	
ILHC-5820H-F	20	Φ58*1800mm	1. 87m <sup>2</sup>	1950*1560mm	1.2L	88	175	213	
ILHC-5824H-F	24	Φ58*1800mm	2. 24m <sup>2</sup>	1950*1860mm	1.5L	82	165	200	
ILHC-5825H-F	25	Φ58*1800mm	2. 34m <sup>2</sup>	1950*1935mm	1.6L	76	153	186	
ILHC-5830H-F	30	Φ58*1800mm	2. 8m <sup>2</sup>	1950*2310mm	1.8L	68	136	165	





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## 2. Pressurized Water Storage Tank (With Double Heat-exchange Coil)

- (1) **Inner storage tank:** Stainless SUS304-2B/ SUS316L 1.5-2.0mm (100-300L), 2.0-2.5mm (400-1000L)
- (2) **Double heat-exchange coil:** High-quality copper coil  $\Phi 12 \times 1.0$ mm
- (3) **Tank shell:** High-quality white coated color steel plate 0.5-0.6mm
- (4) **Tank insulation:** High-density polyurethane integrated foam-forming 50-100mm
- (5) **Accessories:** Thermostat electrical heater with regulator, Anode magnesium, T/P valve, Relief valve

PHOTO	Item No.	Tank Size	Storage Tank	Tank Liter	Insulation Thickness	Container Loading Sets				
						20GP	40GP	40HQ		
	PT2-304/150	$\Phi 470 \times 1460$ mm	SUS304	150L	50mm	58	117	142		
	PT2-304/200	$\Phi 550 \times 1360$ mm	SUS304	200L	50mm	49	98	119		
	PT2-304/250	$\Phi 580 \times 1450$ mm	SUS304	250L	50mm	40	80	97		
	PT2-304/300	$\Phi 580 \times 1710$ mm	SUS304	300L	50mm	35	69	84		
	PT2-304/400	$\Phi 700 \times 1580$ mm	SUS304	400L	60mm	29	57	69		
	PT2-304/500	$\Phi 700 \times 1890$ mm	SUS304	500L	60mm	24	48	58		
	PT2-304/1000	$\Phi 1000 \times 2100$ mm	SUS304	1000L	100mm	11	22	26		
	PT2-316/150	$\Phi 470 \times 1450$ mm	SUS316	150L	50mm	58	117	142		
	PT2-316/200	$\Phi 550 \times 1340$ mm	SUS316	200L	50mm	49	98	119		
	PT2-316/250	$\Phi 580 \times 1450$ mm	SUS316	150L	50mm	40	80	97		
	PT2-316/300	$\Phi 580 \times 1700$ mm	SUS316	300L	50mm	35	69	84		
	PT2-316/400	$\Phi 700 \times 1560$ mm	SUS316	400L	60mm	29	57	69		
	PT2-316/500	$\Phi 700 \times 1890$ mm	SUS316	500L	60mm	24	48	58		
	PT2-316/1000	$\Phi 1000 \times 2100$ mm	SUS316	1000L	100mm	11	22	26		



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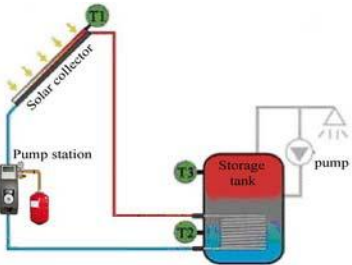

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## 3. Solar Pump Station & Expansion Vessel

Solar Pump Station	Item No.	SP228					
	<b>Specification:</b> 1. Dimension: 435×293×140mm 2. Input voltage: 200V~240V AC or 100V~120V AC 3. Power: ≤3W 4. Accuracy of temperature measuring: ±1℃ 5. Range of temperature measuring: PT1000 : 0~199℃ NTC10K: 0~99℃ 6. Input signals: 2 x PT1000 sensor temperature probe ≤500℃, silicon cable ≤280℃; 4 x NTC10K sensor temperature probe ≤135℃, PVC cable ≤105℃				7. Output signals: 1 x Auxiliary heating output (Max. load current: 12A) 4 x Relay output (Max. load current: 1.5A) 8. System design pressure: 1 MPa 9. Safety valve respond pressure: 0.6 MPa 10. WILO pump model: RS15/6 11. Screw coupling: 3/4" 12. Pipeline material: Brass 13. Range of environment temperature: -10~50℃ 14. Water protection grade: IP40		
	<b>Main Functions:</b> 1. 72 solar hot water systems for choice 2. Time display 3. Temperature difference circulation 4. Tank overheating protection 5. High temperature protection of system overheating 6. Frost protection of pipeline and collector				7. Three periods of time adjustable on pipeline circulation 8. Three periods of time adjustable on auxiliary heating 9. Holiday function 10. Anti-bacteria function 11. Three speed levels on circulation pump 12. Display flow rate 13. Display system pressure		
Expansion Vessel	Item No.	Capacity	Diameter	Height	Max. Pressure	Calibre	
	EV5	5L	168mm	343mm	10 bar	3/4 inch	
	EV8	8L	213mm	343mm	10 bar	3/4 inch	
	EV12	12L	263mm	273mm	10 bar	3/4 inch	
	EV18	18L	273mm	403mm	10 bar	3/4 inch	
	EV24	24L	273mm	468mm	10 bar	3/4 inch	





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Solar Pump Station	Item No.	SP228	USD/SET FOB SHANGHAI	
	<b>Specification:</b>			
	1. Dimension: 450×310×150mm	7. WILO pump model: RS15/6 (110V or 220V)		
	2. Power supply: AC 200V~240V/100V~120V	8. Internet port: 1 x RJ45		
	3. Self power consumption: ≤ 3W	9. Inputs: 2 x PT1000 sensor temperature probe 500℃, silicon cable 280℃; 4 x NTC10K sensor temperature probe 135℃, PVC cable 105℃		
	4. Measuring accuracy of temperature: ±1℃	10. Outputs: 1 x Auxiliary heating output (Max. load current: 15A) 4 x Relay output (Max. load current: 3A)		
	5. Range of temperature measuring: PT1000 : 0~199℃ NTC10K: 0~99℃	11. Water-proof grade: IP40		
	6. Safety valve respond pressure: 0.6 MPa	12. Ambient temperature: -10~50℃		
	<b>Main Functions:</b>			7. System pressure display
	1. Time display	8. Three periods of auxiliary heating		
	2. Temperature difference circulation	9. Flow rate adjustment		
	3. Storage tank overheating protection	10. Holiday function		
	4. Collector overheating protection	11. Different solar system choice		
	5. Frost protection of pipeline and collector	12. Anti-bacteria protection		
	6. Three periods of hot water loop circulation	13. Anti-dry heating Protection		



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## General Terms & Remarks (INCOTERMS 2000):

- Absorber Area** is calculated according to EN standard instead of Chinese GB standard
- Quotation:** Above quotation is based on container price FOB Shanghai port  
CIF price is offered as per request for delivery ports/ doors
- Solar systems** can be customized as per specific requirements
- OEM production** is welcomed with Logo or Label made on products or/and packing
- MOQ:** Samples are available to check quality and service, additional cost would be charged
- Delivery:** Within 10-15 days upon receipt of contracted payment from the buyer
- Payment Term:** 30% T/T in advance, balance be paid via T/T upon sight of B/L copy
- Packing:** Export carton packing (wooden packing for vacuum tubes against sample order)
- Valid time of quotation:** within 15 days upon receipt of this quotation sheet
- Warranty:** 3 years for split solar system and 15 years for vacuum tube
- Certificate:** Solar Key mark, SRCC, CE, ISO 9001, CCC
- Tariff Code/ HS Code:** 8419191000

EUT PRODUCT SERVICES UK LTD.



EUT PRODUCT SERVICES UK LTD.  
SUITE 525, 16-18 CIRCUS ROAD,  
ST JOHN'S WOOD, LONDON, NW8 6PG

Certificate No: SH (09)-00213-EMC

## DECLARATION OF CONFORMITY

CE DECLARATION OF CONFORMITY is hereby issued to certify the following equipment

**Applicant** : HAINING YINUO ELECTRIC CO.,LTD.  
**Address of Applicant** : ZHONGLE VILLAGE, XIEQIAO TOWN, HAINING CITY,  
ZHEJIANG PROVINCE, CHINA  
**Product Name** : SOLAR WATER HEATER  
**Model** : Q-B-J-1-131/2.09、Q-B-J-1-147/2.36、Q-B-J-1-163/2.62、  
Q-B-J-1-194/3.14、Q-B-J-1-241/3.93、Q-B-J-1-283/4.99  
**Test Report No.** : SH (09)-00213-EMC  
**Date of Issue** : Feb. 25, 2009  
**Complies with the requirement set out the Council Directive 2004/108/EC**  
(Electromagnetic Compatibility Directive).  
**Test Standards** : EN55014-1:2000+A1:2001+A2:2002  
EN55014-2:1997+A1:2001  
EN61000-3-2:2000+A2:2005  
EN61000-3-3:1995+A1:2001+A2:2005



For and on behalf of  
EUT PRODUCT SERVICES UK LTD.  
Authorised Signature(s)