

# LBF RANGE

BALANCED FLUED WATER HEATERS



CE

Lochinvar Corporation has been designing, manufacturing and distributing water heating products in USA since 1919 and has built an enviable reputation for reliable, efficient and cost effective water heaters and boilers.



In the UK the company is based in Banbury, ideally located to support its established products with a service which is second to none with Area Sales Managers and a head office staff covering Technical support, Service Technicians, Accounts and General Administration.

Water heating equipment was first sold in the UK under the Lochinvar name in 1976. The "Knight" and "Charger" ranges of direct gas fired Storage Water Heater were among the first of their type to be sold in this country and their popularity has continued to grow due to their suitability for the concept of System Separation and Decentralisation.

In 1981 Lochinvar introduced Copper-Fin® Water Heaters and Boilers and with various models available can offer outputs of up to 568kW. Most recent addition to the Copper-Fin® series is Intelli-Fin™, which has net thermal efficiencies of up to 108% from an incredibly small footprint.

The addition of the Condensa and CP-M Boiler ranges offer further flexibility of choice, offering wall-hung boilers with outputs from 23 to 180kW, all of which offer high levels of efficiency.

All Lochinvar water heaters and boilers have a range of ancillary equipment designed for the specific needs of the UK market, are CE marked and WRAS (Water Research Advisory Service) listed.



# WHY BALANCED FLUE?

LBF Room Sealed Water Heaters offer all the advantages of Lochinvar's traditional Knight and Charger Gas-Fired Storage Water Heaters, but with the added benefit of balanced flue.

Being completely room sealed, LBF Water Heaters draw air for combustion directly from outside, ensuring safe and reliable operation and offering significant installation cost savings when compared with conventionally flued units. They are particularly suitable for use in areas of negative pressure caused, for example, by extractor fans in kitchens where they eliminate potential "spillage" problems.

Lochinvar LBF Water Heaters offer efficiencies of over 89% (net) and also feature baffled flueways for maximum heat transfer. Custom designed baffles are suspended in the multi flueways increasing the transfer of the products of combustion by "scrubbing" the sides of the flueway and increasing the amount of heat transferred from the gases to the water by conduction. These combustion products are taken into a common header and discharged in fan-assisted, concentric balanced flue assembly, either horizontally or vertically.

All models are supplied with a

standard 1-metre balanced flue kit, which includes the terminal. Flue ancillaries including bends and extensions are also available.

All models feature automatic ignition as standard and the facility to interface with building management systems is also available. The vitreous-enamelled steel tank is insulated in expanded polyurethane to reduce heat losses.

With storage capacities from 75 litres to 400 litres and recovery rates from 87 to 1808 litres per hour there is a Lochinvar LBF Water Heater to suit most small, medium and large commercial applications.



## 80 - 120 Series WATER HEATERS

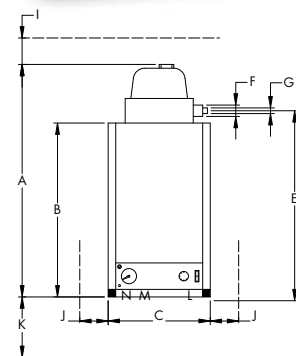
### 2 MODELS

These extremely compact, wall mounted water heaters feature a fan assisted flue with a very small flue diameter of 60mm. Storage capacities are 75 and 115 litres respectively and both have a recovery rate of 87 litres per hour with a heat input of 5kW. Operating efficiency is rated at 89% (net).

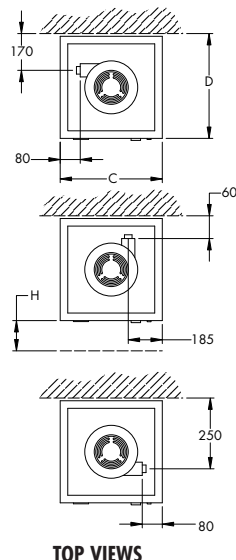
The 80/120 series is particularly suitable for smaller commercial applications such as fast food outlets or office sanitary facilities, providing low volume, instant hot water.

### OTHER FEATURES

- ▼ Wall Mounted Units saving on valuable floor space
- ▼ Automatic Ignition as standard
- ▼ Available for Natural Gas or LPG
- ▼ Easy Flue installation
- ▼ Stainless Steel Burner
- ▼ Wide range of ancillaries, including Unvented System Kits, Relays for BMS and Various Flue Options



FRONT VIEW



TOP VIEWS

LBF MODEL NO.		LBF-80	LBF-120
A	Overall height of heater (mm)	1040	1400
B	Height without flue hood (mm)	895	1255
C	Width (mm)	450	450
D	Depth (mm)	460	460
E	Centre line of flue outlet from bottom of heater (mm)	895	1255
F	Diameter of outer flue (mm)	60	60
G	Diameter of inner flue (mm)	38	38
H	Service clearance from front (mm)	500	500
I	Service clearance from above (mm)	200	200
J	Service clearance from sides (mm)	50	50
K	Service clearance from below (mm)	500	500
L	Cold water inlet ("BSPM)	1/2	1/2
M	Hot water outlet ("BSPM)	1/2	1/2
N	Gas supply ("BSPM)	3/8	3/8

# 150 - 180 SERIES

## WATER HEATERS

### 2 MODELS

Suitable for medium sized applications such as small commercial kitchens, sports clubs, guest houses and small hotels, the 150 model has a net efficiency of 84% and the 180 has a net efficiency of 83%. The models feature storage capacities of 145 litres and 175 litres with recovery rates of 298 and 317 litres per hour (based on a 44° rise).

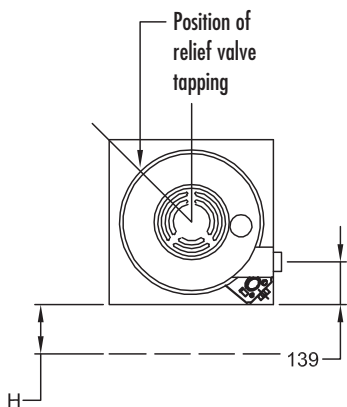
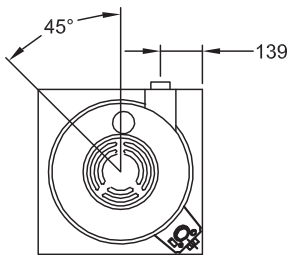
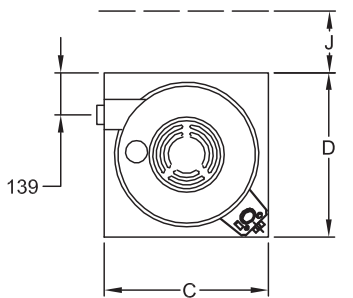
These slim units with a diameter of only 520mm also offer considerable flexibility in flueing options.

The flue outlet, which has a 100mm diameter, can be taken at any position within a 360 degree turn and both models are suitable for vertical or horizontal balanced flue applications.

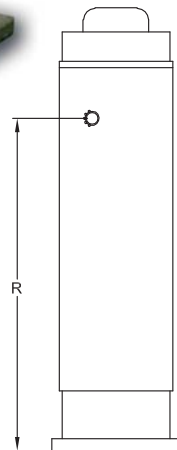
Concentric flue runs of up to 3m horizontal or 2m vertical are attainable and up to 6m horizontal or vertical with a twin pipe assembly.

### OTHER FEATURES

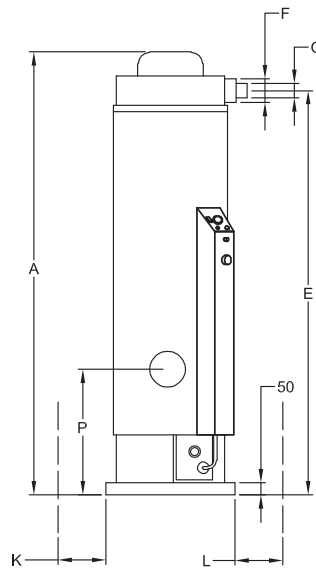
- ▼ Stainless Steel Burner
- ▼ Automatic Ignition as standard
- ▼ Available for Natural Gas or LPG
- ▼ Room-Sealed Fan-Assisted Balanced Flue Assembly
- ▼ Wide range of ancillaries, including Unvented System Kits, Correx Non-Sacrificial Anodes, Relays for BMS and Various Flue Options



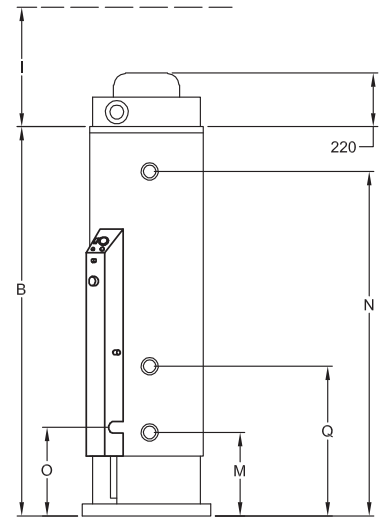
TOP VIEWS



SIDE VIEW LEFT



FRONT VIEW



SIDE VIEW RIGHT

LBF MODEL NO.		LBF-150	LBF-180
A	Overall height of heater	(mm) 1925	2125
B	Height without flue hood	(mm) 1700	1900
C	Width	(mm) 520	520
D	Depth	(mm) 520	520
E	Centre line of flue outlet	(mm) 1750	1950
F	Diameter of outer flue	(mm) 100	100
G	Diameter of inner flue	(mm) 60	60
H	Service clearance from front	(mm) 500	500
I	Service clearance from above	(mm) 200	200
J	Service clearance from rear	(mm) 50	50
K	Service clearance from left side	(mm) 200	200
L	Service clearance from right side	(mm) 300	300
M	Cold water inlet 3/4" BSPF	(mm) 390	395
N	Hot water outlet 3/4" BSPF	(mm) 1620	1825
O	Gas supply 1/2" BSPF	(mm) 420	420
P	Inspection cover	(mm) 460	465
Q	HWS return 3/4" BSPF	(mm) 725	725
R	Relief valve tapping 3/4" BSPF	(mm) 1470	1670

# 220 - 300 - 400 SERIES

## WATER HEATERS

### 3 MODELS



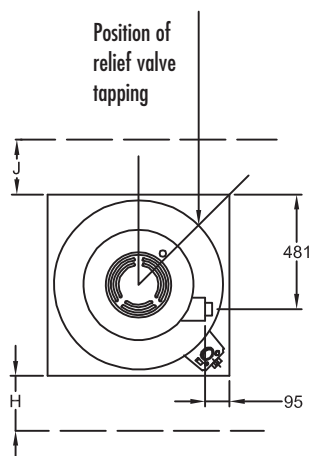
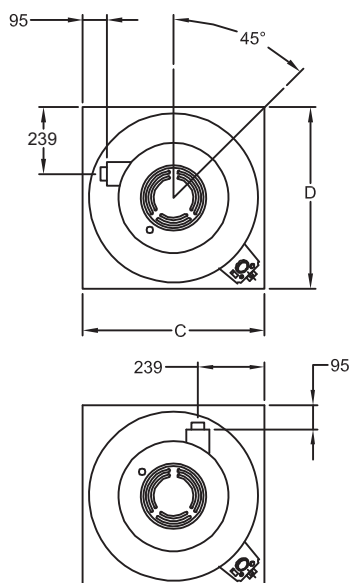
Lochinvar's LBF 400 model is exceptional amongst water heaters thanks to its 400 litre hot water storage capacity. The other models in the range offer capacities of 220 and 300 litres making them all particularly suitable for medium to large, heavy, short peak demand applications such as school kitchens, hotels, leisure centres and multi-occupancy residential buildings.

Large storage capability is equally matched by hot water output, the 220 model achieving 477 litres per hour whilst the 300 and 400 models both deliver 518 litres per hour with 85% (net) efficiency for all.

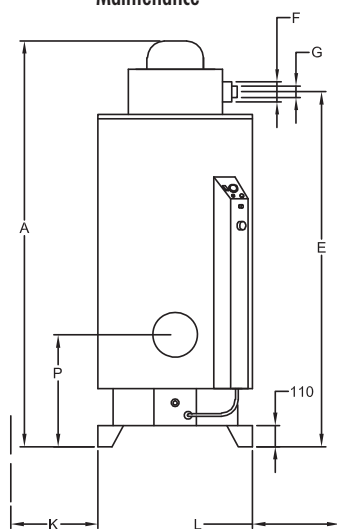
As with the 150 and 180 models the concentric flue runs of up to 3m horizontal or 2m vertical are attainable and up to 6m horizontal or vertical with a twin pipe assembly.

### OTHER FEATURES

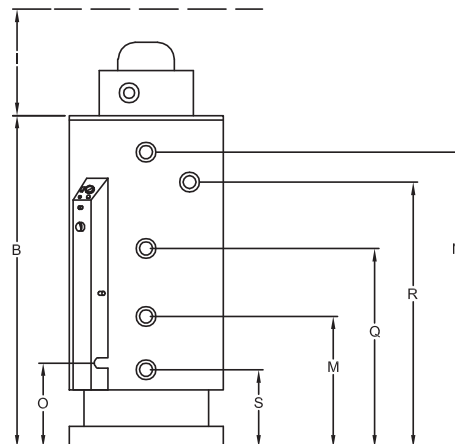
- ▼ Room-Sealed Fan-Assisted Balanced Flue Assembly
- ▼ Available for Natural Gas or LPG
- ▼ Automatic Ignition as standard
- ▼ Easy Magnesium Anode Inspection and Maintenance
- ▼ Stainless Steel Burner
- ▼ Wide range of ancillaries, including Unvented System Kits, Correx Non-Sacrificial Anodes, Relays for BMS and Various Flue Options



TOP VIEWS



FRONT VIEW



RIGHT SIDE VIEW

LBF MODEL NO.	LBF-220	LBF-300	LBF-400
A Overall height of heater (mm)	1665	2015	2365
B Height without flue hood (mm)	1350	1700	2050
C Width (mm)	720	720	720
D Depth (mm)	720	720	720
E Centre line of flue outlet (mm)	1495	1840	2190
F Diameter of outer flue (mm)	100	100	100
G Diameter of inner flue (mm)	60	60	60
H Service clearance from front (mm)	500	500	500
I Service clearance from above (mm)	200	200	200
J Service clearance from rear (mm)	50	50	50
K Service clearance from left side (mm)	50	50	50
L Service clearance from right side (mm)	200	200	200
M Cold water inlet 1 1/4" BSPF (mm)	565	565	565
N Hot water outlet 1 1/4" BSPF (mm)	1300	1655	2000
O Gas supply 1/2" BSPF (mm)	470	470	470
P Inspection cover (mm)	570	570	570
Q HWS return 1" BSPF (mm)	970	970	1135
R Relief valve tapping 1" BSPF (mm)	1135	1485	1835
S Drain 1" BSPF (mm)	420	420	420

# 160 - 240 320 - 382 SERIES

## HIGH OUTPUT WATER HEATERS



### 4 MODELS

With recovery rates up to 1808 litres/hr the four models in the LBF High Output series are highly efficient (up to 89% net) and are completely room sealed. This ensures safe and reliable operation whilst offering significant installation cost savings when compared with conventionally flued units.

A standard 1 metre horizontal balanced flue kit is supplied with each unit and extensions up to a maximum run of 6m horizontal or 7m vertical are available.

#### 160 LBF

Recovery Rate @ 44°C rise - 749 l/hr  
Recovery Rate @ 50°C rise - 659 l/hr

#### 320 LBF

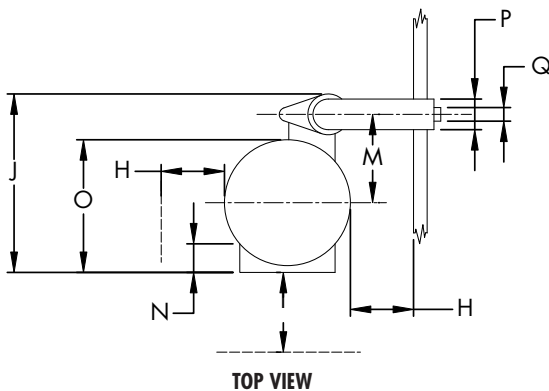
Recovery Rate @ 44°C rise - 1517 l/hr  
Recovery Rate @ 50°C rise - 1335 l/hr

#### 240 LBF

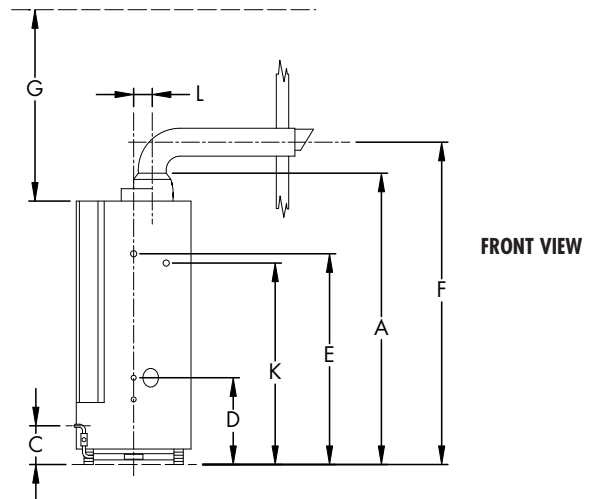
Recovery Rate @ 44°C rise - 1149 l/hr  
Recovery Rate @ 50°C rise - 1011 l/hr

#### 382 LBF

Recovery Rate @ 44°C rise - 1808 l/hr  
Recovery Rate @ 50°C rise - 1591 l/hr



TOP VIEW



FRONT VIEW

### OTHER FEATURES

- Automatic Ignition as standard
- Available for Natural Gas or LPG
- Complete with standard 1 metre balanced flue kit (inc. terminal)
- Wide range of ancillaries including Unvented System Kits, Correx Non-Sacrificial Anodes, Relays for BMS
- Various Flue Options including 90 and 45 degree bends. An overall flue length reduction of 1 metre per 90 degree bend and 0.5 metre per 45 degree bend should be applied.

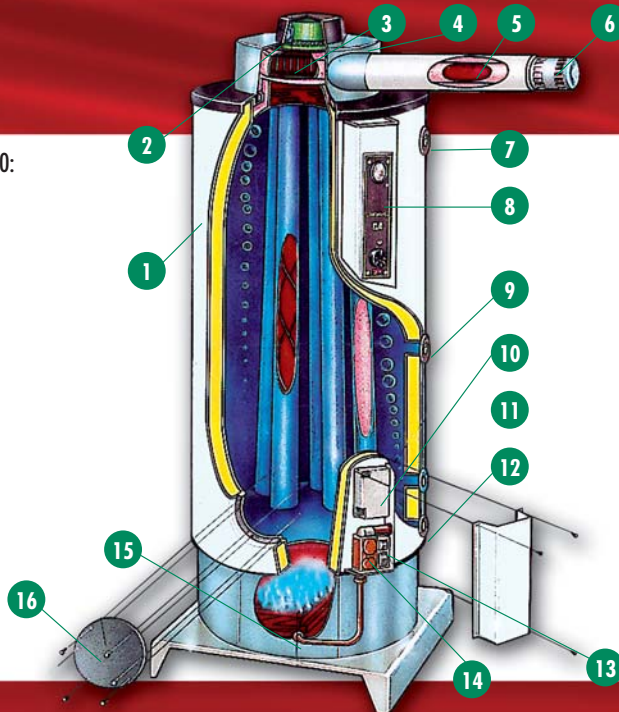
LBF MODEL NO.		160-LBF	240-LBF	320-LBF	382-LBF
<b>A</b>	Overall height of heater (mm)	1780	1780	1780	2005
<b>B</b>	Diameter of heater (mm)	720	720	720	720
<b>C</b>	Gas connection 3/4" BSPM (mm)	355	355	355	355
<b>D</b>	Cold inlet 1 1/2" BSPM (mm)	530	530	530	530
<b>E</b>	Hot outlet 1 1/2" BSPM (mm)	1307	1307	1307	1535
<b>F</b>	Height of centre of flue (horizontal) (mm)	2055	2055	1955	2180
<b>G</b>	Service clearance (above) * (mm)	1168	1168	1168	1168
<b>H</b>	Service clearance (side) (mm)	305	305	305	305
<b>I</b>	Service clearance (front) (mm)	730	730	730	730
<b>J</b>	Depth of heater (mm)	1140	1140	1140	1140
<b>K</b>	SRV tapping 1" BSPF (mm)	1225	1225	1225	1445
<b>L</b>	Centre of flue spigot to right from centre of heater (mm)	130	130	130	130
<b>M</b>	Centre of flue spigot to rear from centre of heater (mm)	500	500	500	500
<b>N</b>	Depth of burner cover (mm)	105	105	105	105
<b>O</b>	Front of burner to rear of storage vessel (mm)	825	825	825	825
<b>P</b>	Diameter of air duct (mm)	150	150	200	200
<b>Q</b>	Diameter of flue outlet (mm)	100	100	130	130

\* Clearance required for Sacrificial Anode Removal

# LBF WATER HEATERS

The principles of all LBF units are similar. This cutaway drawing refers to models 220, 300 & 400:

- 1 Enamel Outer Jacket
- 2 Air Pressure Switch
- 3 Fan Assembly
- 4 Collector hood casing (can be positioned through 360°)
- 5 Balanced Flue Assembly
- 6 Balanced Flue Terminal
- 7 Hot Water Connection
- 8 Control Panel
- 9 Building Return Connection
- 10 Ignition Module
- 11 Cold Water Connection
- 12 Drain Connection
- 13 Gas Connection
- 14 Gas Valve
- 15 Stainless Steel Gas Burner
- 16 Inspection Cover/Anode Location



## TECHNICAL SPECIFICATION

LBF MODEL NO.		LBF-80	LBF-120	LBF-150	LBF-180	LBF-220	LBF-300	LBF-400	160-LBF	240-LBF	320-LBF	382-LBF
Storage Capacity	(Litres)	75	115	145	175	220	300	400	276	276	276	350
Recovery Rate	at 44°C rise	87	87	298	317	477	518	518	749	1149	1517	1808
	Litres/hour at 50°C rise	76	76	262	279	420	456	456	659	1011	1335	1591
Gas Flow rate (Nat. Gas)	(m <sup>3</sup> /hr)	0.53	0.53	1.90	2.00	3.01	3.28	3.28	4.54	6.80	8.40	10.93
Heat Input (Net)	(kW)	5.0	5.0	18.0	19.0	28.5	31.0	31.0	44.0	66.0	88.0	106.0
Heat Output	(kW)	4.7	4.7	16.7	17.5	25.8	28.0	28.0	38.7	59.4	78.3	93.3
Water Connections BSP	(ins)	1/2"	1/2"	3/4"	3/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Gas Connections BSP	(ins)	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"
Flue Diameter	(mm)	38/60	38/60	60/100	60/100	60/100	60/100	60/100	100/150	100/150	130/200	130/200
Weight - Empty	(kg)	49	74	100	110	202	245	286	340	340	345	381
Weight - Full	(kg)	124	189	245	285	422	545	686	616	616	621	731
Max Flue Run	(horizontal)(mm)	3000	3000	3000	3000	3000	3000	3000	6000	6000	6000	6000
Max Flue Run	(vertical)(mm)	2000	2000	2000	2000	2000	2000	2000	7000	7000	7000	7000
Max working water press.	(bar)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0

\*DIRECT MAINS FEED KIT - for direct mains connection or boosted systems, unvented kits are available

KIT NO.	WH11	WH11	WH10	WH10	WH15	WH15	WH16	WH20	WH20	WH20	WH20
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### OPTIONAL ANCILLARIES

- ▼ Correx Non-Sacrificial Electrical Anode
- ▼ CKT9005 - LBF150/LBF180
- ▼ CKT9006 - LBF220/LBF300/LBF400
- ▼ CKT9003 - 160/240/320/382 LBF
- ▼ Direct Mains Feed/Unvented Kit see table
- ▼ RLY2716 Relay for Burner Run, Remote Flame Failure or High Limit Signal (LBF80-400)
- ▼ WH18 (160 - 382 LBF) Relay for Remote Flame Failure Signal

### WARRANTY

Tank .....3 years  
All other components .....1 year

### DRAWINGS

Dimensional drawings for all models are available as hard copy or CAD files, that can be downloaded from our website [www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk).

All Lochinvar LBF models are suitable for Natural Gas or LPG.



[www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)



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