TECHNICAL DATA

DRV-1 DRY ALARM VALVE
3” (DN80) – 6” (DN150)

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1. DESCRIPTION

The Viking model DRV-1 dry valve is a latching differential valve used to separate the water supply from the dry pipe sprinkler system.

The valve head provides a positive mechanical seal within the valve, separating the supply water pressure from the air in the system. The differential design allows a low system air pressure to control a higher water supply pressure. When the air pressure in the dry pipe system is lowered sufficiently to destroy the pressure differential - due to a sprinkler activation and subsequent loss of air pressure in the piping - the valve opens allowing water to enter the dry pipe system.

The valve is also designed to operate a water motor alarm and/or an electric pressure alarm switch.

The Viking model D-2 accelerator can be used to speed up the operation of the valve on large capacity systems or where faster action is required.

Features:

- Lightweight design
- Small footprint
- Low pressure loss
- Easy trim design
- Alarm trim options available to suit local market demands
- Fast assembly on site or available pre-assembled

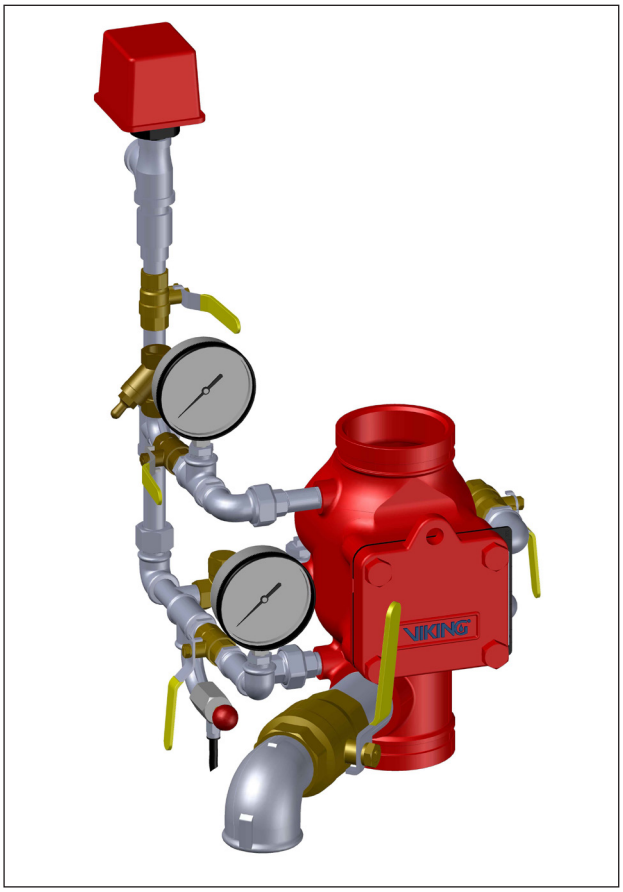

Fig 1.1 - DRV-1 with pressure switch
(Image for illustration purposes only)

2. LISTINGS AND APPROVALS

cULus: Category VPZV.EX27884

FM: Class 1020

EN 12259-3:2000 LPCB Cert ref. 096x

3. TECHNICAL INFORMATION

3.1 Valve data

Table 3.1.1. - Valve specifications	
Maximum working pressure:	17.2 bar / 250 psi
Minimum operating pressure:	1.4 bar / 20 psi
Operating temperature:	4 °C to 60 °C / 39 °F to 140 °F
Style:	Straight through
Sizes:	3” / DN80, 4” / DN100 & 6” / DN150
Connections:	Grooved-Grooved
Differential:	1:5
Colour:	Red
Materials:	Housing: Ductile iron Seat/Disk: Brass Gaskets: Nitrile rubber

For further detailed technical information, refer to the DRV-1 Operating Instructions (part number 927081, DokID 100097582), available on www.viking-emea.com

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3.2 Trim options

The DRV-1 is available with or without the model D-2 accelerator. Further options are available to meet the needs of local markets and also to provide monitoring of the dry valve.

3.2.1 DRV-1 without accelerator

The model DRV-1 is supplied with all the base trim necessary for the valve to operate. The valves are provided with the trim pre-mounted onto the valve as standard but the trim can be provided separately if required.

The trim also includes a system drain.

An alarm line option (***see section 3.2.3***) is required to successfully signal an alarm.

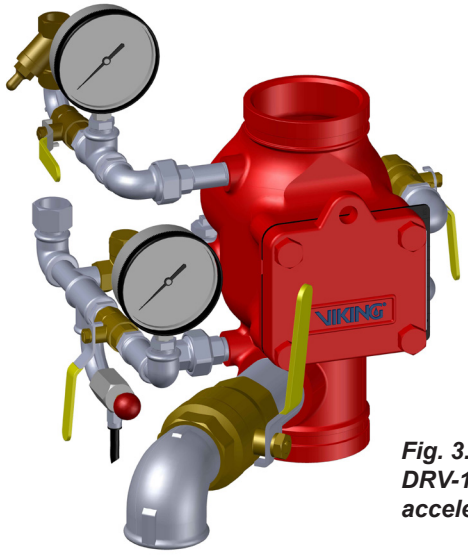

Fig. 3.2.1 - DRV-1 without accelerator

3.2.2 DRV-1 with accelerator

The model DRV-1 with accelerator trim adds the model D-2 accelerator and associated trim. The addition of an accelerator increases the sensitivity of the dry valve assembly by reacting to a smaller drop in system air pressure. This speeds up the operation of the dry system and allows for system designers to increase the size of dry systems.

An alarm line option (***see section 3.2.3***) is required to successfully signal an alarm.

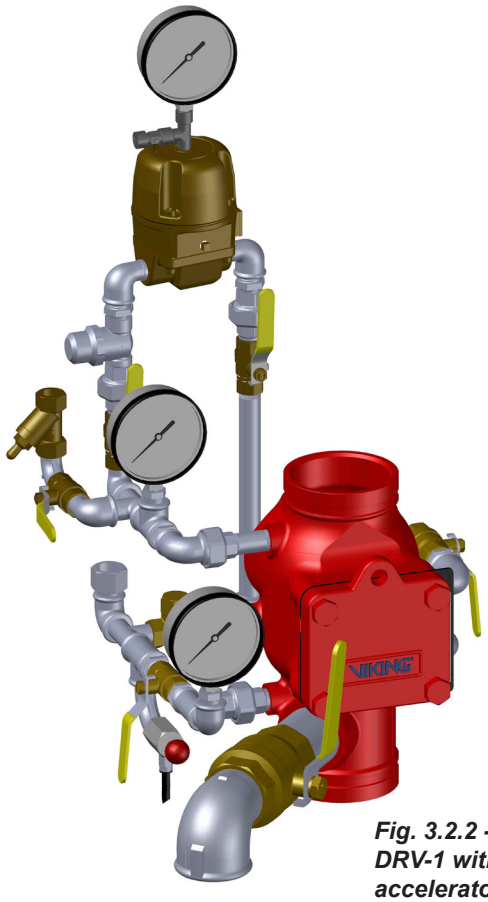

Fig. 3.2.2 - DRV-1 with accelerator

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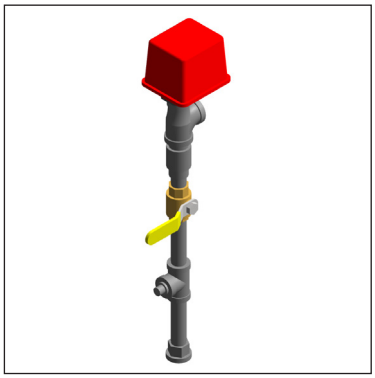
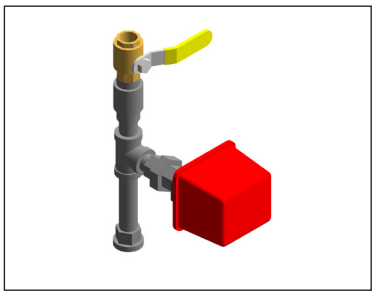
3.2.3 Alarm Trim

The DRV-1 is available with seven alarm trim options to suit local requirements. Each alarm trim option includes the required number of alarm pressure switches and, where required, alarm shut off valves and monitoring.



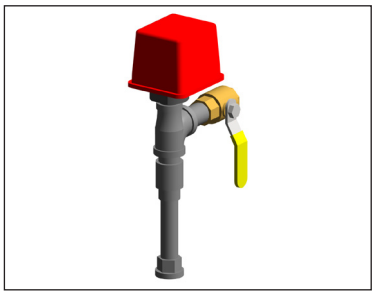
3.2.3.1 Standard

The standard alarm option includes a single alarm pressure switch, alarm shut-off valve and connection for the water motor alarm.



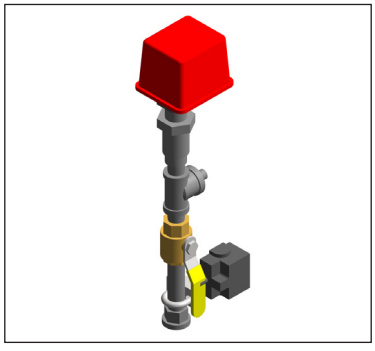
3.2.3.2 UK

The UK alarm trim option includes an alarm pressure switch (without interruption), plus a connection to the water motor alarm with alarm shut-off valve.



3.2.3.3 France

The France alarm trim option includes an alarm pressure switch (without interruption), plus a connection to the water motor alarm with alarm shut-off valve.



3.2.3.4 Germany

The Germany alarm option includes a single alarm pressure switch, monitored alarm shut-off valve and connection for the water motor alarm.

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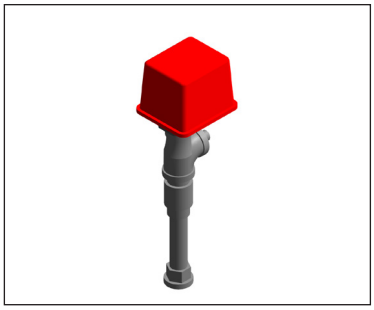
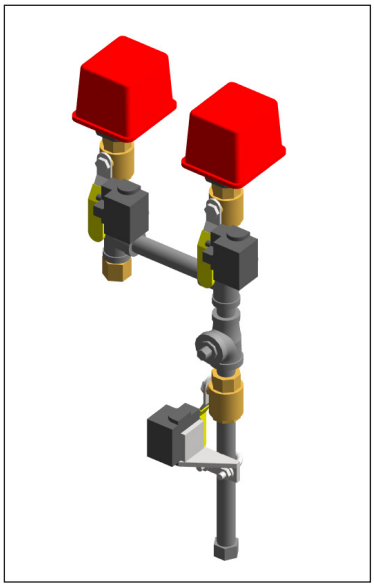


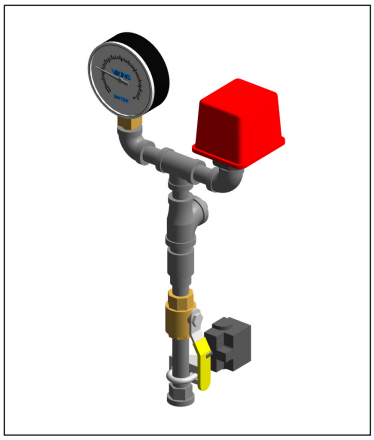
3.2.3.5 Netherlands

The Netherlands alarm option includes a single alarm pressure switch and a connection to the water motor alarm without alarm shut-off valve.



3.2.3.6 Norway

The Norway alarm option includes dual alarm pressure switches each with monitored shut-off valves. In addition there is a monitored alarm shut-off valve and connection for the water motor alarm.



3.2.3.7 Sweden & Finland

The Sweden & Finland alarm option includes a single alarm pressure switch, alarm pressure gauge, monitored alarm shut-off valve and connection for the water motor alarm.

3.2.4 Monitoring Kit

To monitor the air pressure in the dry system pipework, the monitoring kit can be added to the trim. The kit includes the air supervisory pressure switch as well as the necessary nipples and fittings to connect them to the trim. The kit is not assembled onto the trim.

3.2.5 Air Supervisory Pressure Switch

The air supervisory switch is also available as a separate component without the pressure gauge.

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3.2.6 Air Supply Kit

The air supply kit should be connected to the incoming air supply on each DRV-1 valve. The kit includes an orifice which limits the flow of air into the system which prevents excessive trip times on system operation.

The kit includes a normally-closed bypass valve to allow faster fill times on system commissioning.

The air supply kit can be provided with a pressure relief valve pre-set depending on the incoming water supply pressure. The pressure relief valve must be ordered separately.

Table 3.2.6.1 - Pressure relief valve for air supply kit

Set-point (bar)	Suitable for water supply pressures (bar)	Pressure relief valve - Part number
3.5	Up to 10	**131054**
3.9	10.1 to 12	**849833**
4.3	12.1 to 14	**849834**
4.4	14.1 to 16	**849835**

4. ORDERING INFORMATION

To order your fully assembled DRV-1 dry valve, follow our selection process steps:

Step 1 – Select the valve size and type (required)

Step 2 – Add the alarm option (required)

Step 3 – Select the options required (optional)

Table 4.1 - Ordering information - assemblies

Step	Part	Size / Type	Groove-Groove	Grooove-Groove with Accelerator[1]
1	Valve & base trim	3” / DN80	**A/DRV1-3GG**	**A/DRV1-3GG-A**
		4” / DN100	**A/DRV1-4GG**	**A/DRV1-4GG-A**
		6” / DN150 (165 mm)	**A/DRV1-6GG165**	**A/DRV1-6GG165-A**
		6” / DN150 (168 mm)	**A/DRV1-6GG168**	**A/DRV1-6GG168-A**
2	Alarm	Standard	**19420**	
		UK	**19416**	
		France	**19418**	
		Germany	**19417**	
		Netherlands	**19421**	
		Norway	**19422D**	
		Sweden & Finland	**19419**	
3	Options	Accelerator & trim	**DRV1-AK**	
		Monitoring kit	**DRV1-MK**	
		Air supervisory switch	**PS401A (1 contact), PS402A (2 contacts)**	
		Air supply kit	**DRV1-AS**	
		Pressure relief valve for air supply kit	***see table 3.2.6.1***	

[1] already includes option “Accelerator & trim”

The DRV-1 is also available with the trim unassembled. Select the valve and base trim from the table below.
The accelerator and trim can be added using the part from the table above.

Table 4.2 - Ordering information - individual parts

Loose Trim	3” / DN80	**DRV1-T3**
	4” / DN100	**DRV1-T4**
	6” / DN150	**DRV1-T6**
Valve Only	3” / DN80	**DRV1-3GG**
	4” / DN100	**DRV1-4GG**
	6” / DN150 (165 mm)	**DRV1-6GG165**
	6” / DN150 (168 mm)	**DRV1-6GG168**

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5. DIMENSIONS

5.1 Valve plus operating trim (no accelerator)

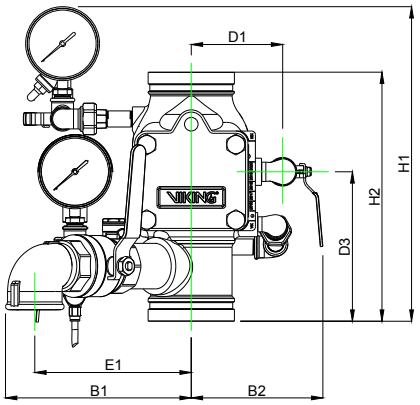

Fig 5.1.1 - Front view

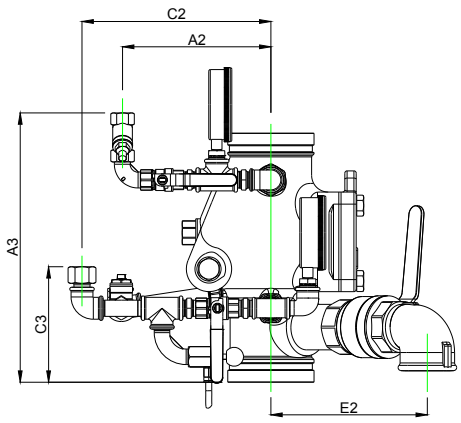

Fig 5.1.2 - Side view

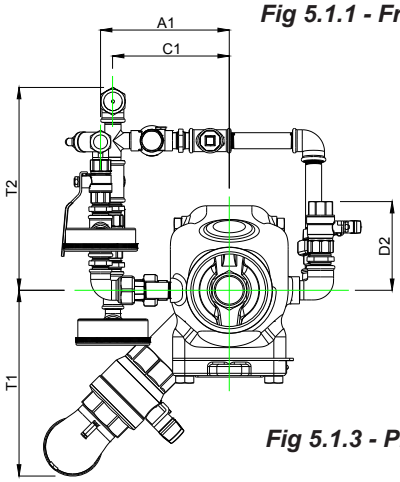

Fig 5.1.3 - Plan view

Table 5.1.4 - Dimensions (mm) & weight (kg)

	3” / DN80	4” / DN100	6” / DN150
A1	146	161	191
A2	197	197	197
A3	339	357	355
B1	192	208	226
B2	164	174	194
C1	139	154	184
C2	251	251	251
C3	188	206	204
D1	111	121	141
D2	116	116	116
D3	180	198	198
E1	125	135	153
E2	125	135	153
E3	70	94	97
H1	398	416	408
H2	295	330	345
T1	153	177	195
T2	269	269	269
Weight	23	26	35

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5.2 Valve plus operating trim and accelerator

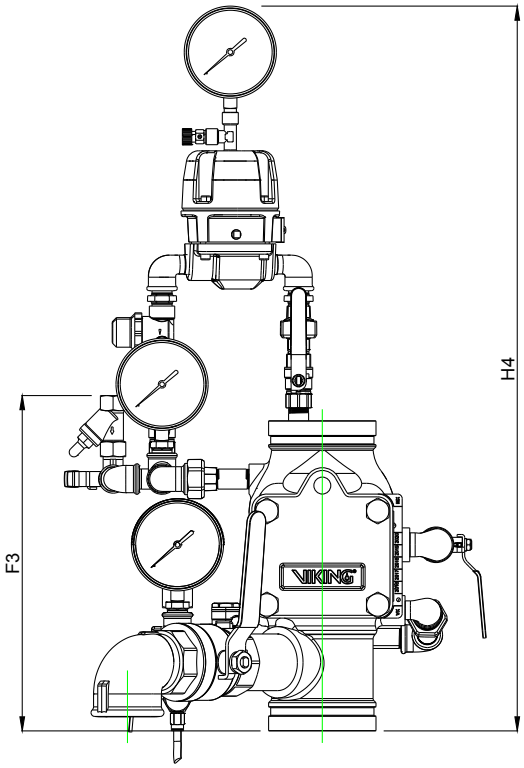

Fig 5.2.1 - Front view

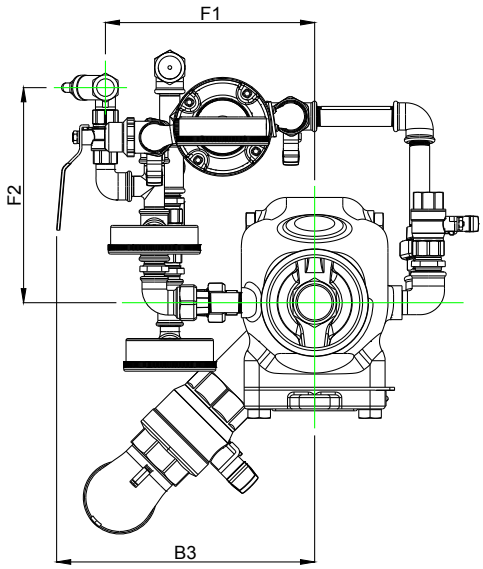

Fig 5.2.1 - Front view

Table 5.2.3 - Dimensions (mm) & weight (kg)			
	3” / DN80	4” / DN100	6” / DN150
B3	251	266	296
F1	202	217	247
F2	229	229	229
F3	339	357	354
H4	711	729	724
Weight	29	32	41

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5.3 Valve plus operating trim and monitoring kit (no accelerator)

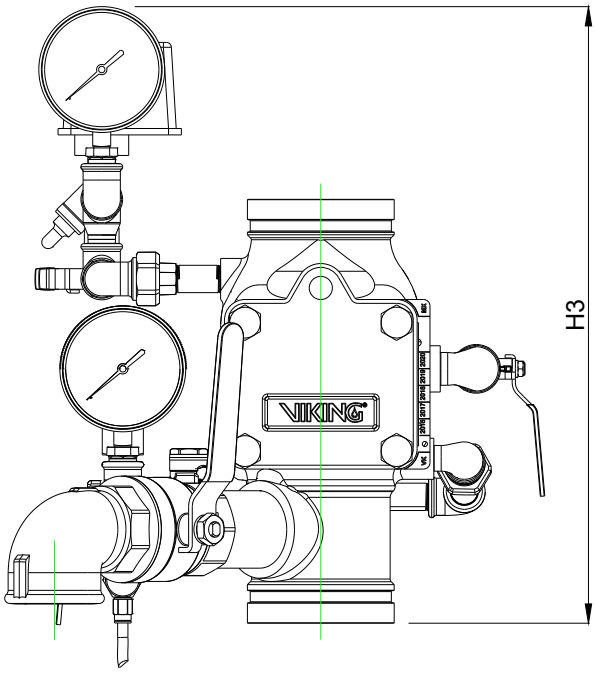

Fig 5.3.1 - Front view

Table 5.3.2 - Dimensions (mm) & weight (kg)			
	3” / DN80	4” / DN100	6” / DN150
H3	456	474	496
Weight	24	27	36

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5.4 Valve plus operating trim and alarm line options (no accelerator)

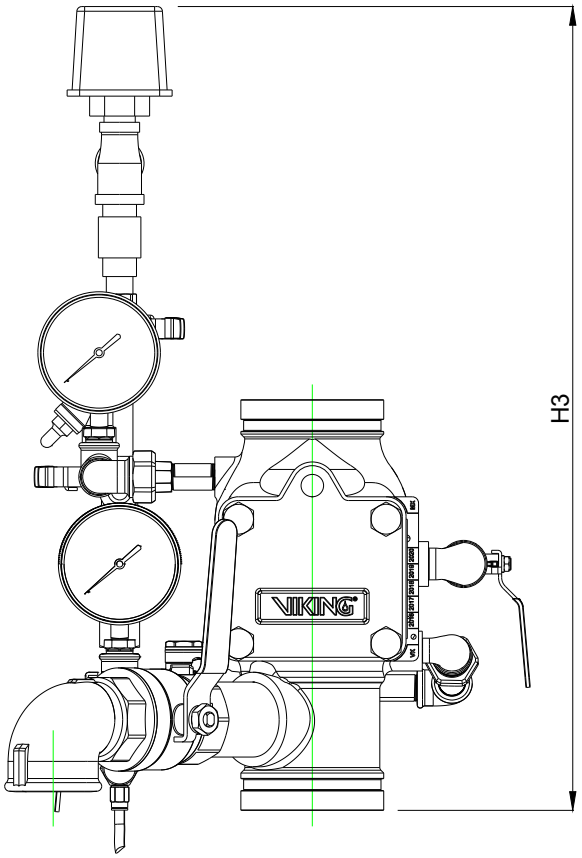

Fig 5.4.1 - Front view (standard trim shown)

Table 5.4.2 - Dimensions (mm) & weight (kg)

		3” / DN80	4” / DN100	6” / DN150
Standard	**H3**	650	650	650
	Weight	25	28	37
UK	**H3**	420	420	420
	Weight	25	28	37
France	**H3**	450	450	450
	Weight	25	28	37
Germany	**H3**	550	550	550
	Weight	25	28	37
Netherlands	**H3**	450	450	450
	Weight	24	27	36
Norway	**H3**	660	660	660
	Weight	27	30	39
Sweden & Finland	**H3**	590	590	590
	Weight	26	29	38

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6. AVAILABILITY

Please contact your local Viking sales office for further information.
The product is available directly from Viking and official distributors only.

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