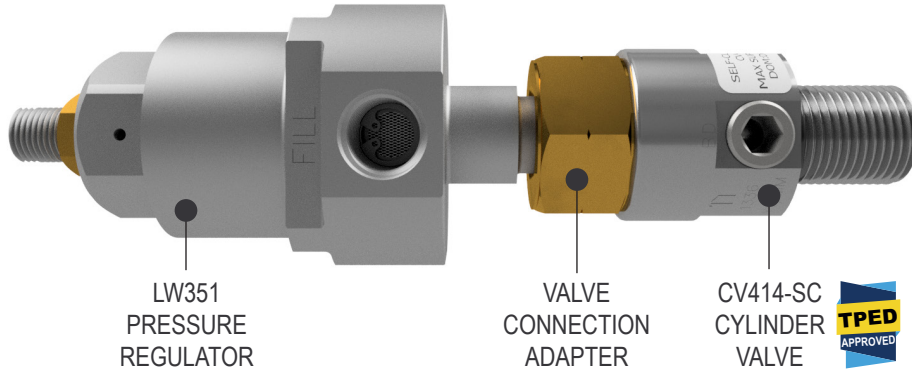


LW351 & CV414-SC Datasheet

PRESSURE REGULATOR & CYLINDER VALVE FOR
LIGHTWEIGHT HYDROGEN FUEL CELL APPLICATIONS

● Gas ● Liquid | ● Diaphragm ● Piston | ● Self-Venting ● Non-Venting | Max Inlet: 350 bar (5,075 psi) | Max Outlet: 3 bar (45 psi) | Cv 0.06



INTRODUCING THE LW351 & CV414-SC...

The LW351 is a piston-sensed pressure regulator, designed specifically to provide constant pressure supply to the hydrogen fuel cell for lightweight applications. The CV414-SC is a TPED approved self-closing cylinder valve for high pressure gas systems.

Together, the LW351 and CV414-SC offer a quick and easy solution for connection to and disconnection from hydrogen gas cylinders.

SPECIFICATION

Max. Rated Inlet Pressure	350 bar (5,075 psi)
Outlet Ranges	Up to 3 bar (45 psi)
Design Proof Pressure	150% max. working pressure
Seat Leakage	In accordance with ANSI/FCI 70-3
Weight	0.2kg (LW351) / 0.14kg (CV414)

Note: Pressure regulator rating may be limited by connection type, Cv and/or seat material. Contact the office for specific pressure or temperature requirements.

STANDARD MATERIALS OF CONSTRUCTION

LW351	MATERIALS
Body and Bonnet	Aluminium T6511 (UNS AW6082)
Main Valve Pin	ASTM A479 316/316L Stainless Steel (UNS S31600/S31603)
Seat	Acetal (POM)
Valve Spring	Inconel® X750 (UNS N07750)
Piston	Aluminium T6511 (UNS AW6082)
O-Rings	FKM/FPM (Viton)
Loading Spring	ASTM 17-7 PH Stainless Steel (UNS S17700)
Filter	40 Microns

CV414-SC	MATERIALS
Body	ASTM A479 316/316L Stainless Steel (UNS S31600/S31603)
Seat	PEEK™ (450G) PCTFE (Kel-F)
O-Rings	EPDM (Ethalyne)

FEATURES AND BENEFITS

1 EASY DISCONNECT FEATURE

Offers a low torque, quick and easy disconnect when a cylinder refill is required.

2 CONTINUAL OPERATION

When connected, the CV414-SC offers a continual supply of gas from the cylinder.

3 CV414-SC: TPED APPROVED (UP TO 350 BAR)

For the transportation of pressure equipment including gas cylinders and their valves.

4 EASY FILLING

Quick cylinder filling connection provides a long life-span.

5 OPTIONAL BURST DISC

For extra gas cylinder protection.

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PRESSURE REGULATOR & CYLINDER VALVE FOR LIGHTWEIGHT HYDROGEN FUEL CELL APPLICATIONS

☒ Gas ☐ Liquid ☐ Diaphragm ☒ Piston ☐ Self-Venting ☒ Non-Venting Max Inlet: 350 bar (5,075 psi) Max Outlet: 3 bar (45 psi) Cv 0.06

Dimensions shown for standard configurations only - please contact the office for other options.

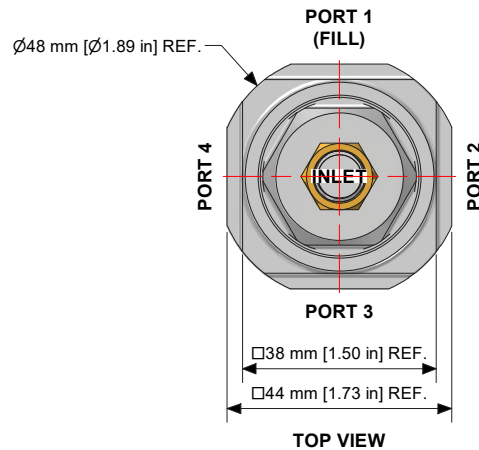
Technical drawing of the Valve Connection Adaptor (VCM) shown. The drawing is a side view of a vertical assembly. At the top is a threaded rod with a hex nut. Below this is a grey, cylindrical body with a 'FILL' label and a circular port. The bottom section is a brown, cylindrical hex fitting. Dimensions are given in mm and inches, with 'REF.' indicating reference points. An arrow points to the bottom of the assembly, labeled 'VALVE CONNECTION ADAPTOR (VCM SHOWN)'.

Dimensions (mm [inches]):

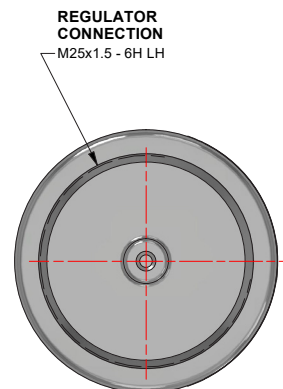
- 118.5 mm [4.66 in] REF.
- 89.3 mm [3.51 in] REF.
- 50.8 mm [2.00 in] REF.
- 41.5 mm [1.63 in] REF.
- 27 mm [1.06 in] REF. A/F HEX
- 17 mm [0.67 in] REF. A/F
- 26.1 mm [1.03 in] REF.

VALVE CONNECTION ADAPTOR
(VCM SHOWN)

Use 'ORDERING INFORMATION' on page 4 to select connection size and type for each port position - port 1 is the fill port and includes a filter as standard.



For flow curve information, please see separate LW351 datasheet.



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LW351 & CV414-SC Datasheet

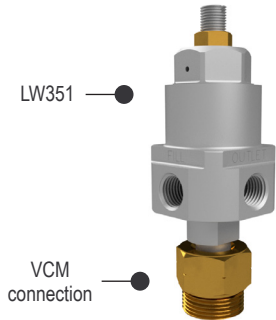
PRESSURE REGULATOR & CYLINDER VALVE FOR
LIGHTWEIGHT HYDROGEN FUEL CELL APPLICATIONS

● Gas ● Liquid | ● Diaphragm ● Piston | ● Self-Venting ● Non-Venting | Max Inlet: 350 bar (5,075 psi) | Max Outlet: 3 bar (45 psi) | Cv 0.06

HOW IT WORKS

1

The LW351 is ordered with a VCM connection specified as the inlet connection.

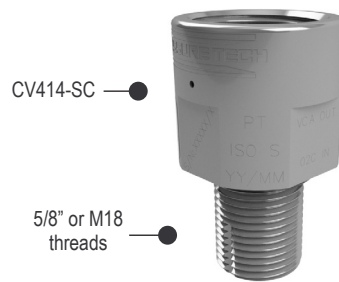


Example part number:

LW351-06-01-V-K-**VCM**-DJDJ

2

The CV414 is ordered with 5/8" or M18 threads to suit the cylinder's connection. A burst disc port is an optional extra.



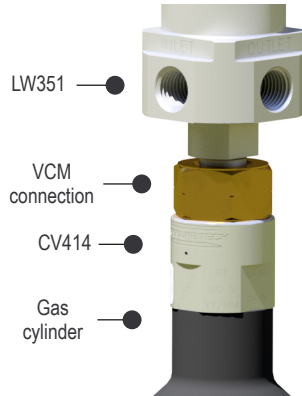
3

The CV414 is permanently connected to the cylinder.



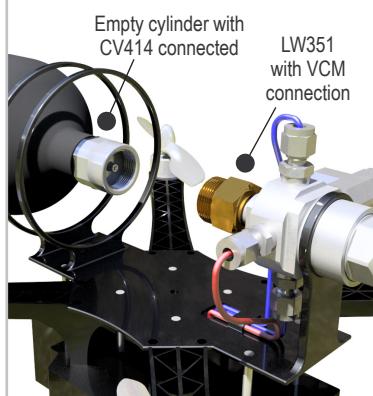
4

The LW351 is wound onto the CV414, opening its main valve and allowing gas to flow through the regulator.



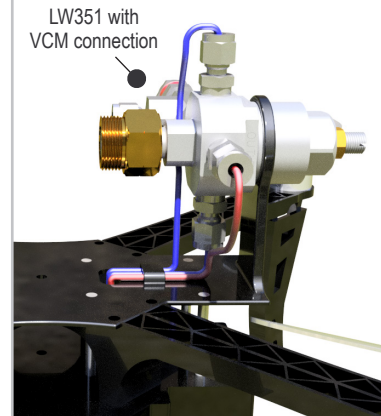
5

To refuel, the CV414's low torque disconnect makes it easy to remove the cylinder from the LW351.



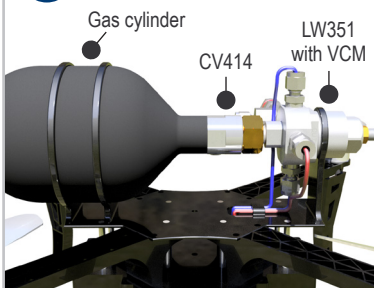
6

The LW351 stays connected to the application, e.g. drone.



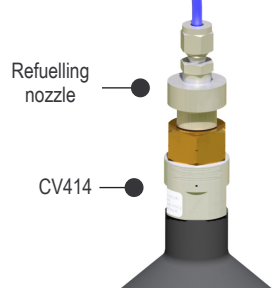
7

A new cylinder with CV414 is connected to the LW351.



8

Empty cylinders are refilled via the CV414.



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ORDERING INFORMATION: LW351

To build a part number, simply combine the characters identified below in sequence:

PORTS 1 2 3 4							
LW351	06	01	V	D	VCA	A A A A X X	XXX
REGULATOR LW351						MODIFICATIONS* Contact the office for further information.	
CV VALUE 06 – 0.06						PORT CONNECTION SIZES/TYPES** X – No port B – Inlet with 1/4" BSPP D – Inlet with 1/4" NPT L – Inlet with SAE-4 (7/16-20 Thread) A – Inlet with 1/8" BSPP C – Inlet with 1/8" NPT E – Inlet with 3/8" 24 UNF (Burst Disc) K – Inlet with M8x1 (Transducer Port) P – Inlet with M10 x 1 (Transducer Port) N – Inlet with M11 x 0.75 (Burst Disc) F – Outlet with 1/8" BSPP H – Outlet with 1/8" NPT G – Outlet with 1/4" BSPP J – Outlet with 1/4" NPT M – Outlet with SAE-4 (7/16-20 Thread) S – Outlet Solenoid Valve T – Outlet with M8x1	
CONTROL PRESSURE 01 – Up to 1 bar (14.5 psi) 02 – Up to 2 bar (29 psi) 03 – Up to 3 bar (45 psi)						1. See page 3 for position of ports 1 to 4. 2. DJDJ configuration available on short lead time.	
O-RING MATERIAL** E – EPDM V – FKM/FPM							
SEAT MATERIAL** A – Acetal (POM)							
INLET CONNECTION** (BASE OF REGULATOR) 01C – 5/8"-18 UNF Cylinder (Male) 02C – M18 x 1.5 Cylinder (Male) 02B – 1/4" BSPP (Female) 02N – 1/4" NPT (Female) VCA – Valve Connection Adapter (Female Thread) - CV414-SC required (sold separately) VCM - Valve Connection Adapter (Male Thread) - CV414-SC required (sold separately) X – No Inlet Connection							

Important: If supplied with an integrated Manual Isolation Valve or Solenoid Valve on the downstream of the regulator, please ensure a suitably sized pressure relief valve has been fitted to the additional downstream port of the LW351.

OPTIONAL EXTRAS

	PART NUMBER	DESCRIPTION
Service Kit	SRK-LW351-06-A-01-V-K...	LW351 service kit.

Note: Ancillary equipment also available

TRADEMARKS: Inconel® is a registered trademark of Inco Alloys International

* Where applicable

** Other connections/materials may be available

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TURN FOR
CV414 ORDER
INFO

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ORDERING INFORMATION: CV414

To build a Pressure Tech part number, simply combine the characters identified below in sequence:

CV414

SC

S

K

02C

NBD

T2

MODEL

CV414

TYPE

SC – Self-Closing

BODY MATERIAL

S – ASTM A479 316/316L Stainless Steel

TPED CERTIFICATION

NT2 – No TPED Certification
T2 – TPED Certification
(Up to 350 bar (5,075 psi) only)

BURST DISC (SPECIFICATIONS BELOW)

NBD – No Burst Disc Port
BDE – Burst Disc Port with 3/8"-24 UNF Thread
BDN – Burst Disc Port with M11 x 0.75 Thread
BD0 – Burst Disc with M11 x 0.75 Thread
BD1 – Burst Disc with M11 x 0.75 Thread
BD2 – Burst Disc with M11 x 0.75 Thread
BD3 – Burst Disc with M11 x 0.75 Thread
BD4 – Burst Disc with 3/8"-24 UNF Thread

CYLINDER CONNECTION

01C – 5/8"-18 UNF Cylinder (Male)
02C – M18 x 1.5 Cylinder (Male)

SEAT MATERIAL**

K – PCTFE (max. inlet 350 bar/5,075 psi)
P – PEEK™ (max. inlet 414 bar/6,000 psi)

EXAMPLES

CV414-SC-S-X-XXX-NBD-X	Valve supplied with no burst disc port.
CV414-SC-S-X-XXX-BDE-X	Valve supplied with burst disc port, but no burst disc.
CV414-SC-S-X-XXX-BD0-X	Valve supplied with burst disc fitted in burst disc port.

BURST DISC SPECIFICATIONS

Burst discs are also available to order separately, as spares - please contact the office to enquire or order:

	REF.	THREAD	CYLINDER RATED PRESSURE	MAX.	MIN.
Burst Discs	BD0*	M11 x 0.75	300 bar (4,350 psi)	450 bar (6,525 psi)	427 bar (6,195 psi)
	BD1*	M11 x 0.75	310 bar (4,500 psi)	517 bar (7,500 psi)	491 bar (7,120 psi)
	BD2*	M11 x 0.75	350 bar (5,075 psi)	525 bar (7,615 psi)	498 bar (7,225 psi)
	BD3*	M11 x 0.75	414 bar (6,000 psi)	621 bar (9,005 psi)	590 bar (8,555 psi)
	BD4	3/8"-24 UNF	310 bar (4,500 psi)	517 bar (7,500 psi)	491 bar (7,120 psi)

Note 1: Burst disc selection is the users' responsibility and the information displayed is for guidance only.

Note 2: The maximum and minimum pressures shown above represent bursting pressures at 20°C.

TRADEMARKS: Inconel® is a registered trademark of Inco Alloys International
PEEK™ is a trademark of Victrex PLC

* Burst disc meets the requirements of ASME UG-134 E and CGA S1.1 standards

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