



Imagination.  
Innovation.  
Excellence.

  
**integral**  
HYDRAULICS

Manufacturers of Hydraulic  
Pumps, Valves & Accessories



## ABOUT US

Integral hydraulics is located in the heart of Belgaum's thriving industrial area, Karnataka. We are in the business of manufacturing of Precision Hydraulic Valves, Pumps and Accessories. The company excels in new product development. In order to provide competitive price Company continuously works on cost reduction, improved quality, on-time delivery and high Levels of customer satisfaction.

Sophisticated, reliable and modular in concept, our valve solutions can be designed to meet practically any application need. To ensure this we employ latest machines and manufacturing techniques. Every Integral product undergoes a stringent performance test before it reaches you. By being with us, you can achieve assured competitive edge—always.

### PRODUCT WE OFFER:

- Hand Pumps & Radial Piston Pumps
- Pressure Relief Valves
- Directional Control Valves
- Flow Control Valves
- Check Valves
- Logic Cartridge Valves
- Electrohydraulic Pressure Switches
- Manifolds, Sub Plates & Blanking Plates



**Our Core Values**

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**HAND PUMPS (HP12, HP16)**

Hand Pumps are durable, portable, highly efficient and easy to use. Hand pumps Features single-speed operation for low-cycle, basic applications. Reduced handle effort and ergonomic grip for less operator fatigue. Quick grip handle allows for easy transport.

MODEL	MAX. WORKING PR. (BAR)	FLOW CAPACITY C.C./STROKE	OIL TANK CAPACITY (LITRES)
HP 12	700	2.8	1.2
HP 16	350	5	1.2
HP12-1000	1000	2.8	1.2



**TWO SPEED (FEED AND POWER) HAND PUMPS (HP5012, HP5016)**

These are 2 stage pumps, which reduces the number of handle strokes compared to a single speed pump. This is ideal for applications when high flow is needed at the first stage (such as when advancing a cylinder to the point of load contact). The pump switches automatically to the second stage which is the low flow high-pressure stage. Quick grip handle allows for easy transport.

MODEL	MAX. WORKING PR. (BAR)	FLOW CAPACITY UP TO 30 BAR C.C./STROKE	FLOW CAPACITY ABOVE 30 BAR C.C./STROKE	OIL TANK CAPACITY (LITRES)
HP 5012	700	49	2.8	7/13
HP 5016	350	49	5	7/13



**TWO SPEED (FEED AND POWER) HAND PUMPS (HP5012\*\*D, HP5016\*\*D) WITH ROTARY DCV**

These are 2 stage pumps, provided with integrated Rotary Directional Control Valves (DCV) with two outlet ports for switching of the hand pump power between the two sides of a double acting cylinder.

MODEL	MAX. WORKING PR. (BAR)	FLOW CAPACITY UP TO 30 BAR C.C./STROKE	FLOW CAPACITY ABOVE 30 BAR C.C./STROKE	OIL TANK CAPACITY (LITRES)
HP5012**D	700	49	2.8	7/13
HP5016**D	350	49	5	7/13



**TWO SPEED (FEED AND POWER) HAND PUMPS - HP3012**

These are 2 stage pumps, which reduces the number of handle strokes compared to a single speed pump. This is ideal for applications when high flow is needed at the first stage and the low flow high-pressure at second stage.

MODEL	MAX. WORKING PR. (BAR)	FLOW CAPACITY UP TO 30 BAR C.C./STROKE	FLOW CAPACITY ABOVE 30 BAR C.C./STROKE	OIL TANK CAPACITY (LITRES)
HP 3012	700	17.5	2.8	3



Radial piston pump is a versatile option that can handle a range of flow rates and pressures. These pumps are known for their high efficiency and long service life, with a compact design that allows for easy installation in tight spaces. They're commonly used in applications such as material handling, injection moulding, and machine tools.

### PUMPING ELEMENT - (1RP)

Model 1RP is a Piston type self-contained pumping element Assembly for 1RP-Series Radial Piston Pumps, supplied with its Suction valve, Delivery valve and a spring loaded piston as a single unit. Oil immersed type, open execution, face mounting, and valve controlled fixed delivery.



### RADIAL PISTON PUMP (1RP3)

The working pistons extend in a radial direction symmetrically around the drive shaft. These are fixed displacement, Bi-directional rotation of shaft, high Pressure pumps. These are driven by electric motor. The stroke of each piston is caused by an eccentric drive shaft. 1RP3 is low cost radial piston pumps with three pumping elements.



PR. BAR	700	550	450	350	250	200
NO. OF PUMPING ELEMENTS	FLOW (l/MIN) @ 1450 RPM					
	Z	A	B	C	E	F
3	0.9	1.6	2.6	3.7	5	5.8

### RADIAL PISTON PUMP (1RP / 1RPE)

The working pistons extend in a radial direction symmetrically around the drive shaft. These are fixed displacement, Bi-directional rotation of shaft, high Pressure pumps. These are driven by electric motor. The stroke of each piston is caused by an eccentric drive shaft. 1RP & 1RPE are open execution oil immersed pumps. Extension shaft is available to couple Low Pressure Pumps.



PR. BAR	700	550	450	350	300	250	200
NO. OF PUMPING ELEMENTS	FLOW (l/MIN) @ 1450 RPM						
	Z	A	B	C	E	F	F
3	0.9	1.6	2.6	3.7	4.3	5	5.8
5	1.5	2.7	4.3	6.2	7.2	8.4	9.6
7	2.2	3.8	6	8.6	10.1	11.7	13.5

### RADIAL PISTON PUMP (1RPC / 1RPCE)

These are closed execution casing pumps which can be mounted above the oil level. The working principle is identical to 1RP series pumps. Extension shaft is available to couple Low Pressure Pumps.



PR. BAR	700	550	450	350	300	250	200
NO. OF PUMPING ELEMENTS	FLOW (l/MIN) @ 1450 RPM						
	Z	A	B	C	E	F	F
3	0.9	1.6	2.6	3.7	4.3	5.0	5.8
5	1.5	2.7	4.3	6.2	7.2	8.4	9.6
7	2.2	3.8	6	8.6	10.1	11.7	13.5



## RADIAL PISTON PUMPS (1RP-SERIES)

### BELL HOUSING ASSEMBLY (BH AND BHP)

The bell housing series BH and BHP are designed for coupling hydraulic pumps. Available in ISO (BH) and Factory standard (BHP) mounting flanges.

These bell housings are precisely machined to reduce misalignment of coupled shafts. The correct alignment of the shafts along with the cushioned power transmission through resilient spider increase the life of the bearings of the pump/motor coupled.

The construction also reduces the noise generation considerably.



### EXTENSION BRACKET ASSEMBLIES (EB)

The Extension Bracket series EB are designed for coupling Low Pressure hydraulic pumps having ISO flanges to Radial Piston pumps (1RP, 2RP, 11RP, 12RP Series).

These Extension Brackets are precisely machined to reduce misalignment of coupled shafts. The correct alignment of the shafts along with the cushioned power transmission through a resilient spider increases the life of the bearings of the High-Low pr. Pump coupled. The construction also reduces the noise generation considerably.



## PRESSURE CONTROLS

### DIRECT OPERATED PRESSURE RELIEF VALVES - CARTRIDGES

This model series is based on a valve in seat design with damping Poppet which prevents any valve vibration. It produces a flat control characteristic.

- Valve cartridges for block installation
- Adjustment methods such as hand Knob and Set Screw Type,



NOMINAL PRESSURE AND FLOW RATINGS

MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW IN I/MIN
DR 06 - C	700	30
DR 10 - C	400	80
DR 20 - C	400	160

### DIRECT OPERATED PRESSURE RELIEF VALVES (DR)

This model series is based on a valve in seat design with damping Poppet which prevents any valve vibration. It produces a flat control characteristic.

- Type of connection for pipeline installation (Threaded) and block installation (Sub plate)
- Valve cartridges for block installation
- Adjustment methods such as hand Knob and Set Screw Type,



NOMINAL PRESSURE AND FLOW RATINGS

MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW IN I/MIN
DR 06 - T/S	700	30
DR 10 - T/S	400	80
DR 20 - T/S	400	160

**PRESSURE CONTROL MODULES - PCM 06-06**

Designed to control the double pumps of a Hi-Low system. Unloads low pressure pump when system pressure rises above the pressure set on unloader valve. Relieves high pressure pump when system pressure reaches the value.



NOMINAL PRESSURE AND FLOW RATINGS			
MAX. PR. FOR HIGH PR. RELIEF (BAR)	HIGH PR. FLOW (l/MIN)	MAX. PR. FOR UNLOADING (BAR)	LOW PR. FLOW (l/MIN)
400	25	100	25

**PRESSURE CONTROL MODULES - PCM 20-06 / PCM 20-10**

Designed to control Double pumps of a Hi-Low system. Consists of a High pressure relief valve, a Check valve and a low pressure unloading valve. Unloading of pumps by Solenoid valve / Valves as an optional feature.



NOMINAL PRESSURE AND FLOW RATINGS				
MODEL	MAX. PR. FOR HIGH PR. RELIEF (BAR)	HIGH PR. FLOW (l/MIN)	MAX. PR. FOR UNLOADING (BAR)	LOW PR. FLOW (l/MIN)
PCM 20-06	315	25	100	160
PCM 20-10	315	60	100	160

**COUNTER BALANCE VALVE – (CBV)**

Counter balance valves are seat type valves. They offer free-flow from their port B to A and give leak free closure in opposite direction up to a predetermined pressure. This predetermined cracking pressure can be adjusted within its maximum specified range.



NOMINAL PRESSURE AND FLOW RATINGS				
MODEL	NOMINAL FLOW HANDLING CAPACITY (l/MIN)	MAX. SETTING PRESSURE (BAR)	MAX. WORKING PRESSURE (BAR)	PORT SIZE
CBV - 10T	30	200	315	G1/2
CBV - 20T	115	200	315	G1

**DIRECTIONAL CONTROL VALVES**

**LEVER OPERATED DIRECTIONAL CONTROL VALVE (4LDC-06)**

4-port, spool type, directional control valves with hand lever actuation and wide variety of spool types with spring-centred, spring-offset and de-tent arrangements. The Valve mounts on Cetop-03 (NG06) Mounting interface.

NOMINAL PRESSURE AND FLOW RATINGS	
<b>MAX. WORKING PRESSURE (BAR)</b>	<b>MAX. FLOW I/MIN</b>
PORT P, A AND B ----- 350	60
PORT T----- 160	



**LEVER OPERATED DIRECTIONAL CONTROL VALVE (4LDC-10)**

Five chamber spool type, directional control valves with hand lever actuation. Flexibility in rotating the operating mechanism by 90° x 4. Wide variety of spool types with spring-centred, spring-offset and de-tent arrangements. The Valve mounts on Cetop-05 (NG10) Mounting interface.

NOMINAL PRESSURE AND FLOW RATINGS	
<b>MAX. WORKING PRESSURE (BAR)</b>	<b>MAX. FLOW I/MIN</b>
PORT T----- 100	100
PORT P, A AND B ----- 700/350	



**LEVER OPERATED DIRECTIONAL CONTROL VALVE WITH RELIEF VALVE PROVISION (4LDC-10-T03)**

Five chamber spool type, directional control valves with hand lever actuation. Flexibility in rotating the operating mechanism by 90° x 4. Wide variety of spool types with spring-centred, spring-offset and de-tent arrangements. The Valve mounts on Cetop-05 (NG10) Mounting interface.

NOMINAL PRESSURE AND FLOW RATINGS	
<b>MAX. WORKING PRESSURE (BAR)</b>	<b>MAX. FLOW I/MIN</b>
PORT P, A AND B ----- 350	100
PORT T----- 100	



**PILOT OPERATED DIRECTIONAL CONTROL VALVE (4DCP-10)**

Pilot operated directional control valves are hydraulically operated spool valves. They control the start, stop & direction of fluid flow. Available as spring centered and spring offset. Mounts on standard ISO 4401, Is10187.

NOMINAL PRESSURE AND FLOW RATINGS	
<b>MAX. WORKING PRESSURE (BAR)</b>	<b>MAX. FLOW I/MIN</b>
PORT P, A AND B ----- 350	100
PORT T----- 250	



**FLOW CONTROL VALVES**

**THROTTLE /CHECK VALVE (MODULAR) (MTCV 06)**

Double throttle/check sandwich type valves, non-pressure compensated modular construction. Two throttle/check valves, symmetrically arranged in the housing, restrict flow with adjustable throttles in one direction while providing free flow in the opposite direction. Can be used as Metering-in or Metering-out device. Available in Hand Knob and Set Screw flow adjustment mechanism. Mounts on ISO 4401-03- Interface

NOMINAL PRESSURE AND FLOW RATINGS		
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN
MTCV - 06	315	35



**THROTTLE /CHECK VALVE (MODULAR) (MTCV10)**

Double throttle/check sandwich type valves, non-pressure compensated modular construction. Two throttle/check valves, symmetrically arranged in the housing, restrict flow with adjustable throttles in one direction while providing free flow in the opposite direction. Can be used as Metering-in or Metering-out device. Available in Hand Knob and Set Screw flow adjustment mechanism. Mounts on ISO 4401-05 Interface

NOMINAL PRESSURE AND FLOW RATINGS		
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN
MTCV - 10	315	100



**ADJUSTABLE THROTTLE CHECK VALVES (TCT)**

Non pressure and viscosity compensated valves. Gives adjustable flow in one direction and allows free flow in opposite direction. Inline threaded body with rotating sleeve for flow adjustment.

NOMINAL PRESSURE AND FLOW RATINGS			
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN	PORT SIZE
TCT - 06	315	25	G1/4
TCT - 08	315	35	G3/8
TCT - 10	315	50	G1/2



**CHECK VALVES**

**CHECK VALVES (CV)**

These seat type valves allow free flow from port A to port B and give leak-proof closure in opposite direction. Available as inline mounting or Sub-plate mounting as per factory & ISO standards available with Various cracking pressures.

NOMINAL PRESSURE AND FLOW RATINGS							
MODEL	CV 06	CV 08	CV 10	CV 15	CV 20	CV 25	CV 30
PORT SIZE	G1/4	G3/8	G1/2	G3/4	G1	G1-1/4	G1-1/2
MAX. WORKING PR. (BAR)	315	315	315	315	315	315	315
MAX. FLOW IN I/MIN	10	20	30	80	120	220	280





### CHECK VALVE (CVI)

Seat type valves, with internal drain Pilot Operated Check Valves. Threaded or Sub-plate mounting construction. Available with two pilot piston size options.



NOMINAL FLOW AND PRESSURE RATINGS		
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN
CVI-10	315	80
CVI-20	315	160
CVI-30	315	350

### CHECK VALVE - (2CVI10T)

These valves are available with the pilot operated check valve facility on either A or B or both A and B threaded ports. The hydraulic opening operation for free flow in reverse direction is achieved by means of internal pilot pressure available from the other working port.

NOMINAL FLOW AND PRESSURE RATINGS		
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN
2CVI-10T	315	80

### CHECK VALVE – (MCVI-06 / MCVI-10)

These modular valves are available with the pilot operated check valve facility on either 'A' or 'B' ports. The hydraulic opening operation for free flow in reverse direction is achieved by means of internal pilot pressure available from the other working port. Interface conforming to ISO 4401-AB-03-04-A, IS10187, DIN 24340

To ensure proper closure of both valve poppets, both user connections should be unloaded when the control valve is in the neutral by connecting with the return line.

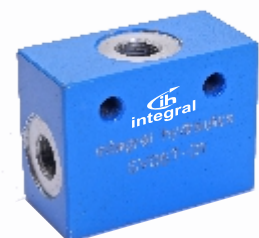
NOMINAL FLOW AND PRESSURE RATINGS		
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN
MCVI-06	315	35
MCVI-10	315	80



### SHUTTLE VALVE (SLV-06)

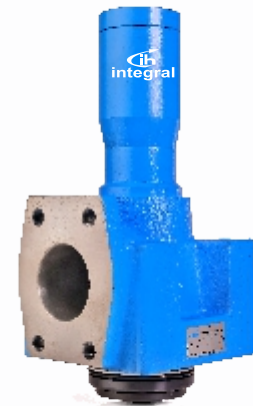
Seat type construction. Automatically connects its P port to either A or B depending upon whichever of the two ports is at higher pressure level. Isolates port A and B from each other. Port P gets connected to tank, only if, port A and port B are connected to tank. Available in Threaded type.

NOMINAL FLOW AND PRESSURE RATINGS		
MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN
SLV-06	315	30



### PREFILL AND EXHAUST VALVE (PV40 TO PV80)

Intended for prefilling and exhausting of large hydraulic cylinders. Can be used as anticavitation check valves. Decompression feature is optional up to size 80.



NOMINAL FLOW AND PRESSURE RATINGS

MODEL	MAX. WORKING PR. (BAR)	MAX. FLOW I/MIN	
		PREFILLING	EXHAUSTING
PV 40	315	152	304
PV 50	315	236	472
PV 63	315	372	744
PV 80	315	608	1216

### PREFILL AND EXHAUST VALVE (PV100 TO PV125)

The Prefill Exhaust Valve (PV) is a hydraulic-pilot operated check valve with seat type construction. It allows free flow from port A to port B. Flow from port B to port A can be enabled by applying pilot pressure to its port X.

The decompression feature enables the valve to open in two stages progressively, allowing smooth and rapid exhaust of the compressed oil. Opening and closing time of the valve can be influenced by providing Throttle-Check Valves in the X port line.

Flanged port A of the valve housing can be rotated around vertical axis through 360° to facilitate access to flange fixing bolts and flange orientation



#### Features

- Integrated Seat provides high rigidity, high fatigue resistance and less deflection of the flange.
- Encapsulated O-ring allows easy of assembly and prevents o-ring damage during assembly.
- Simplified Cavity machining
- Larger suction flange to reduce pressure drop in the suction line and consequently increase flow handling capability
- Improved Pilot cylinder sealing to minimize pilot leakage and reduce frictional loss during operation.

NOMINAL FLOW AND PRESSURE RATINGS

MODEL	MAX WORKING PR. (BAR)	MAX. FLOW I/MIN	
		PREFILLING	EXHAUSTING
PV 100	315	940	1880
PV 125	315	1480	2960

## LOGIC CARTRIDGE VALVES

### CARTRIDGE VALVES - LCV 16 TO LCV 25

These valves are suitable for mounting in manifold cavities machined as per ISO 7368. By selecting suitable cartridge and cover, it is possible to achieve functions like Check valve, Directional control valve, Unloading valve, Throttle valve etc. These valves offer fast response, have very low internal leakage and can handle very large flow rates. The cartridges are available with two area ratios.

NOMINAL FLOW AND PRESSURE RATINGS

MODEL	CV 16	CV 25
MAX. WORKING PR. (BAR)	350	350
MAX. FLOW I/MIN.	160	400



**LOGIC CARTRIDGE VALVE COVERS**

**CARTRIDGE VALVE COVERS (LCC)**

Covers are available with functions like Standard Function, Relief Function and Relief cum unloading (Solenoid Controlled) Function.



**MANIFOLDS**

**MANIFOLDS FOR DIRECTIONAL CONTROL VALVES**

Designed especially for multistation directional control valves conforming to CETOP- RP 35 H size 3 And CETOP- 4.2 - A - O5(P). Number of stations varies from minimum 1 to maximum 6.



**MANIFOLD -MC3-DR-06-S/B**

This is a general purpose manifold having facility of mounting Direction Control Valve (conforming to ISO4401-03-02) and Direct acting Pressure Relief Valve (conforming to Integral Hydraulics standards DR- 06 cavity). Manifold comes with one inlet, two outlet and one tank port. Max working Pressure 350 bar.

Construction Types are Side Port Entry - MC3-DR-06 -S and Bottom Port Entry - MC3-DR-06-B



**SUBPLATES**

Designed especially for mounting directional control valves, CETOP- 03 size And CETOP- 05 size.



**BLANKING PLATES**

These plates are used to block the Cetop-03 and Cetop-05 interfaces.



**PRESSURE SWITCH – PSW**

Non adjustable differential type. Spring loaded sealed piston construction. Encapsulated design for protection against dust. Six pressure ranges available, which can be adjustable upto 10, 50, 100, 200, 350 and 420 bar. Transparent plug-in connector is available with LED.



NOMINAL FLOW AND PRESSURE RATINGS		
MODEL	MAX. OPERATING	PR. RANGE
PSW-S	420	ADJUSTABLE UP TO
		10, 50, 100, 200, 350 & 420 BAR

## OUR REACH

