SH7lc-A
Rotary to Linear Direct Drive Servo Valve

SH7lc-A Rotary Direct Drive Servo Valve

Product Overview

The Scylla SH7lc-A Rotary Direct Servo Valve (RDDV) uses a rotary motor to drive the valve spool to produce linear displacement, which in turn controls the opening and closing of the valve port, ultimately realizing the prices output of the flow. SH7lc-A valve has the most compact volume, the lightest weight of similar products, ultra-high anti-contamination ability and dynamic performance, while continuing the excellent low-pressure performance and high reliability of direct-drive valves. With its own excellent performance and competitive price, the SH7lc-A servo valve will be an invaluable asset in your hydraulic control application.

Key Features

- Customized onboard electronics with integrated spool position feedback
- Rated flow of up to 40 l/min (at 70 bar dP)
- Bandwidth of >200 Hz (both -3dB and 90 deg. phase lag) for 25% signal
- Step response of <3.5 ms
- Precision cut spool & sleeve design for high resolution flow metering
- Compact structure
- Alternatively with NG6 (ISO 4401-03-02-0-05) or size S04 (ISO 10372-04-04) port pattern
- Low power consumption of <3 W

SH7lc-A Technical Data

General		
Design		Bi-directional Drive Servo Drive
Actuation		Rotary-Linear
Size		NG6/CETOP 03/NFPA D03
Mounting Pattern		ISO 4401-03-03-0-05
Ambient Temperature	°C (F)	-20...+60 (-4…+140)
Mass	kg (lb)	0.660 (1.455)
Vibration Resistance	g	30, 3 axes
Shock Resistance	g	50
Hydraulic Data		
Max Operating Pressure	bar (psi)	315 (4500) P, A, B, 100 (1450) T
Fluid		Hydraulic Oil DIN 51524-535
Fluid Temperature	°C (F)	-20...+80 (-4…+176)
Viscosity	cSt	5-500
Rated Flow(1)	l/min US gal/min	5 – 40 1.3 – 10.5
Leakage at 100 bar(2)	l/min US gal/min	<0.5 <0.13
Filtration		ISO 4406 (1999) 18/16/13
Static/Dynamic Data		
Response Time at 100% Step Input(3)	ms	<3.5
Frequency Response (±25% signal)(3)	Hz	200
Hysteresis	%	<1
Threshold	%	<0.3
Null Shift	%	<0.2
Electronics Data		
Supply Voltage	V	20-28 (Typical 24)
Max. Draw Current	A	4.5 (Locked-rotor current)
Input Signal		±10V / ±10mA / ±20mA / 4…20mA
Feedback Signal		4…20mA
EM Compatibility		EN61000-6-2, EN55011: 1998+A1

1) Axis cut, measured with 70 bar pressure drop (two control edges)
2) Axis cut valve
3) Measured as 90% output rise time dP 70 bar P-T

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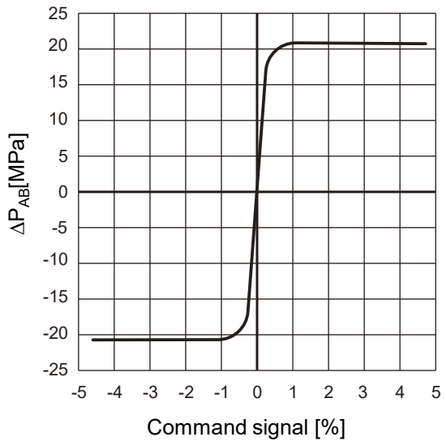
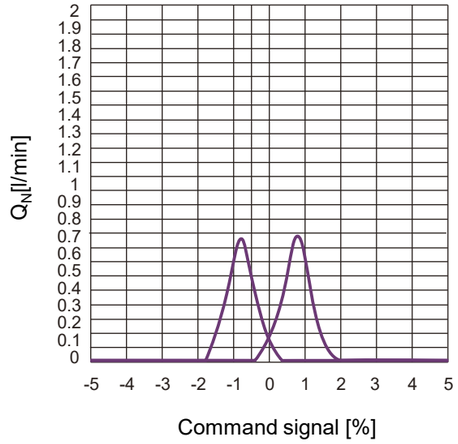
SH7Ic-A Performance Graphs

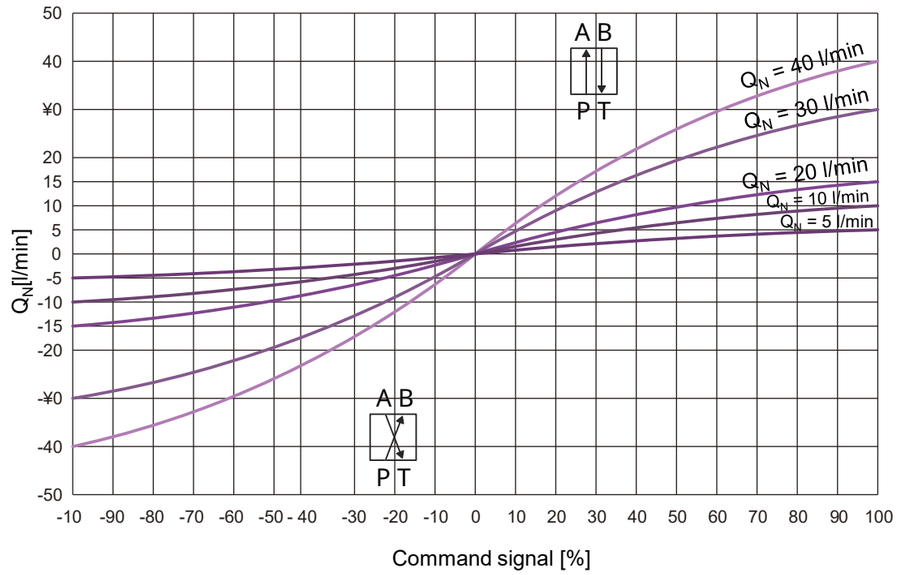
Pressure Gain



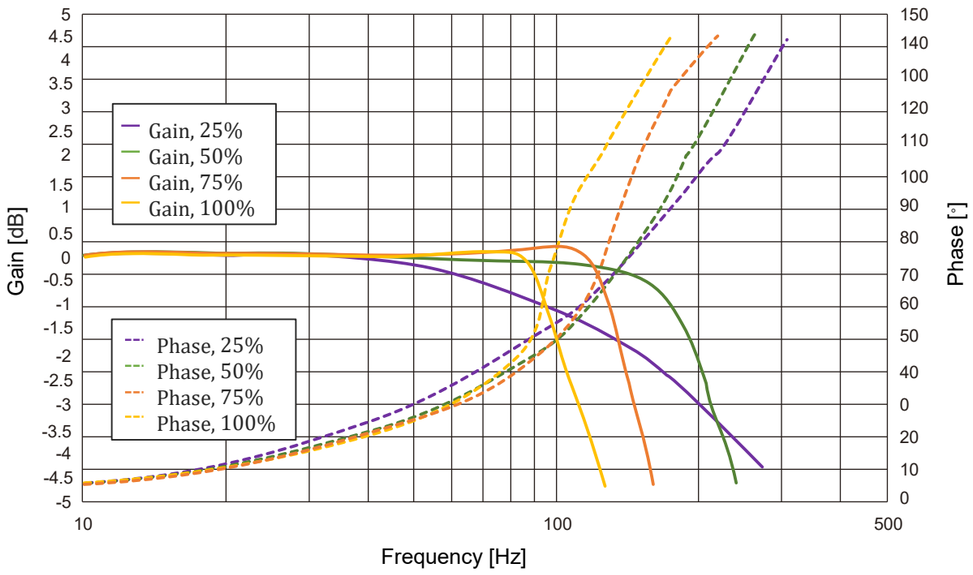
Internal Leakage



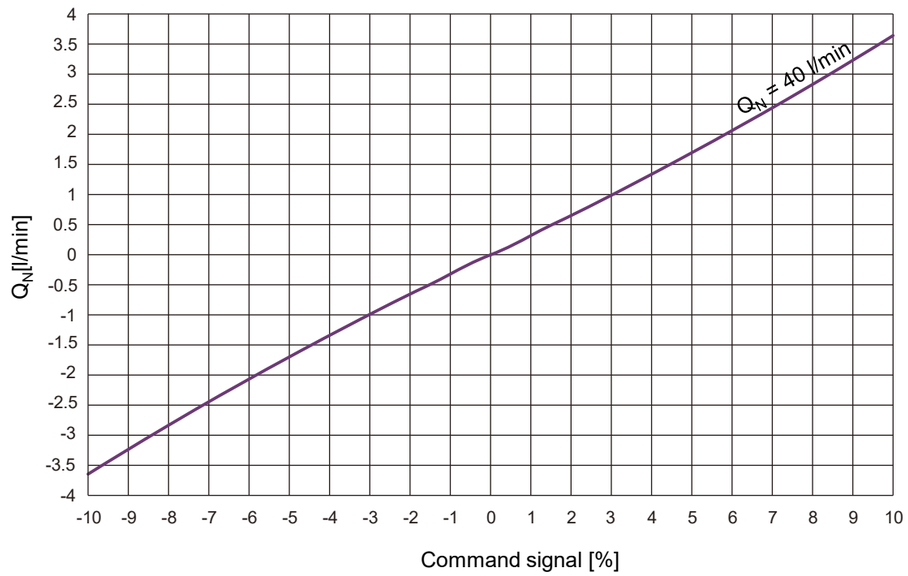
Flow vs Command



Frequency Response



Step Response



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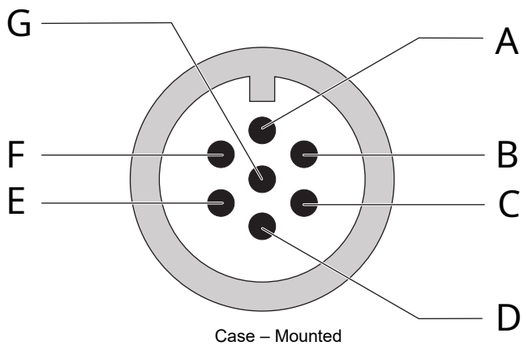
SH7Ic-A Electronics Interface Diagrams

7 Pin Circular Interface Diagrams (Code E7)



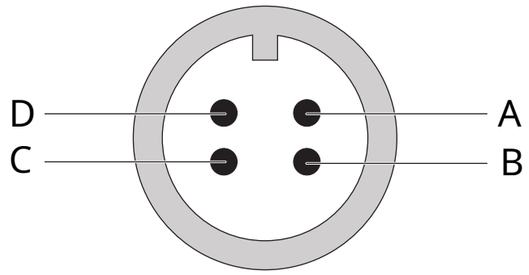
Case – Mounted

Type:	
Termination:	Connector according to EN 175201-804/MIN 5015 equivalent, shell size 14
Number of Contacts:	7

Pin	Function	Description	
A	Supply +	+24 V	
B	Supply 0 V	0 V	
C	Enable Input	U_{EN} > 8.5…28 VDC: Valve ready for operation (enabled) U_{EN} < 6.5 V_{DC}: Valve disabled Input resistance: 10 kΩ	
D	Input +	Differential Input Signal +	
E	Output -	Differential Input Signal -	
F	Output +	U_{F-B} = 2 to 10 V; U_{F-B} is proportional to the spool position; 6 V corresponds to the spool center position R_L = 500 Ω	I_{out} = 4 to 20 mA referenced to B; I_{out} is proportional to the spool position; 12 mA corresponds to the spool center position; The output is short-circuit-proof; RL = 0 to 500 Ω
G	Earth	-	

1) When the enable function is selected, the function of pin C is the enable input.
This replaces the standard pin function.

4 Pin Circular Interface Diagrams



Case – Mounted

Type:	
Termination:	Connector according to EN 175201-804/MIN 5015 equivalent, shell size 14
Number of Contacts:	4

Pin	Function	Description
A	Supply +	+24 V
B	Signal +	Differential Input Signal +
C	Signal -	Differential Input Signal -
D	Supply 0 V	0 V

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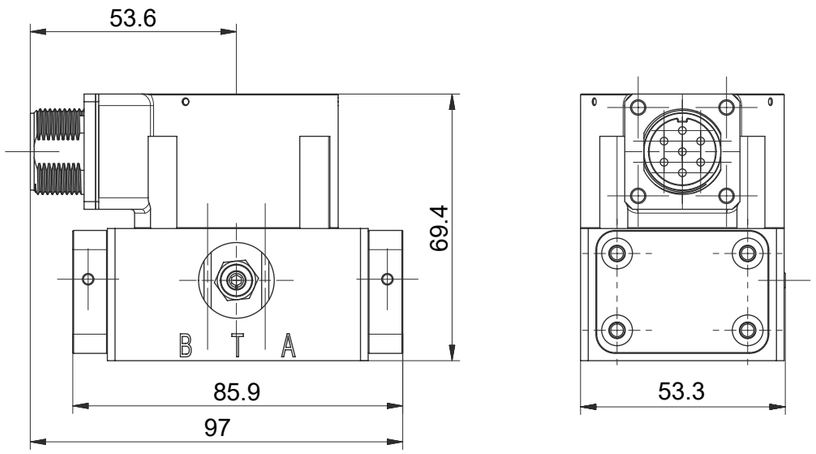
SH7Ic-A Unit Dimensions



Dimensions are displayed in mm. Not to scale.

Mounting Surface Pattern

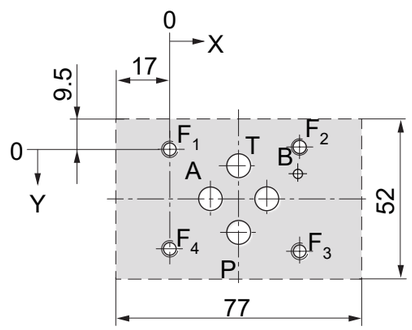
		P	A	B	T	Y	F_1	F_2	F_3	F_4
Diameter Ø	mm in	7.5 0.3	7.5 0.3	7.5 0.3	7.5 0.3	3.3 0.13	M5	M5	M5	M5
X Position	mm in	21.5 0.84 6	12.7 0.5	30.2 1.189	21.5 0.846	40.5 1.6	0	40.5 1.594	40.5 1.594	0
Y Position	mm in	25.9 1.02	15.5 0.61	15.5 0.61	5.1 0.201	9 0.354	0	-0.75 -0.03	31.75 1.25	31 1.22

Bolts (F_1, F_2, F_3, F_4)

Type: M5 x 44 DIN EN ISO 4762-10.9
Required Torque: 7.5 Nm (5.53 ft-lbf)

O-rings (P, A, B, T)

Type: 9.25 x 1.78, 4 x ISO 3601-1-012
Material: NBR, FKM



SH7Ic-A Ordering Information

SH7Ic-A	-	-	-	-	-	-		
Please inquire for other need	Rated flow (l/min)	Main spool type	Signals for 100% spool stroke	Electric interface	Seal material	Fail-safe function		
						X	Undefined, no fail safe position	
						O	Null position without electrical signal	
						A	P to A 15%	
						B	P to B 15%	
					D	NBR		
					F	FKM		
				7	7 Pin			
				4	4 Pin			
			A	±10 V				
			B	±10 mA				
			S	4…20 mA				
		1	Zero-lap					
		3	Overlap (3%)					
	05	5						
	10	10						
	20	15						
	30	30						
	40	40						
X								

Variants on request

At Scylla, we are proud of our ability to offer tailored solutions that meet our customer's specific needs. If you require a non-standard configuration, or a bespoke modification, we are confident we can provide you with the best solutions. Talk to us using the contact details provided and one of our team will respond as soon as possible.