RV

Relief Valves





Relief Valves Application Notes



Basic Operation: Relief Valves

Relief valves are pressure limiting devices. They open when the inlet pressure exceeds the pressure setting of the valve, which is derived by pressure acting against a spring force. The point at which the valve begins to open is known as the crack pressure. The force created by the spring can be adjusted to achieve the required pressure setting. There are various types of relief valves available as shown below.

Direct Acting Poppet Type

A direct acting, poppet type relief valve blocks flow from port 1 to 2 until there is sufficient pressure to overcome the spring force and move the poppet off its seat, opening the valve. As the pressure increases, the poppet will be forced further back against the spring allowing more flow to tank. The valve will re-seat when the pressure falls below the pressure setting. Depending on the design, this re-seat pressure could be between 70% and 80% of the pressure setting, commonly referred to as hysteresis. These valves are ideal as system relief valves where the flow across the valve is intermittent and then constant. They provide a cost-effective solution giving low leakage, fast response, and are contamination tolerant. Some models are available with an integrated reverse free flow check or with dampening for smooth and stable response.



Direct Acting Spool Type

Similar in operation to the poppet type, a spool type design helps to remove instability and offers good control over varying flows at low pressure. These are ideal for use as a purge relief in a closed loop circuit.



Differential Area Poppet Type

A differential area, poppet type relief valve blocks flow from port 2 to 1 until there is sufficient pressure to open the valve. The pressure acts on the differential area between the seal on the outside diameter on the poppet and the seat diameter, overcoming the spring force to move the poppet off its seat and open the valve. The spring force required to establish high pressure settings is lower, given that it is applied to a smaller area than the direct acting, poppet type valve. These valves are very fast acting, making them ideal for use in clipping pressure spikes.

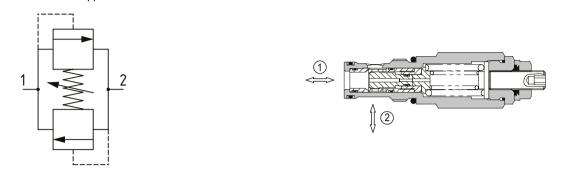


Danfoss

Relief Valves Application Notes

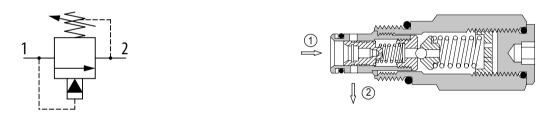
Bi-Directional Poppet Type

A bi-directional, poppet type valve is a dual cross over relief valve in one cartridge. When the pressure exceeds the setting, the valve will open from port 1 to 2 or port 2 to 1 depending on where the pressure is applied. The pressure setting will be the same in both directions. These are ideal for use as cross over relief valves in motor applications.



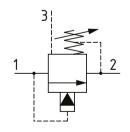
Pilot Operated Spool Type

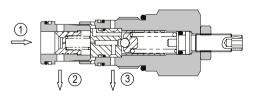
A pilot operated, spool type relief valve blocks flow from port 1 to 2 until there is sufficient pressure to overcome the spring force and move the poppet off the pilot seat. This creates a pressure differential across the spool, causing the spool to overcome a lighter spring and open the valve. This two-stage design allows for smooth operation at varying flows while maintaining a consistent setting. The re-seat pressure on these valves is between 80% and 90% of the pressure setting. They are capable of higher flows than the direct acting alternative in the same cavity size. They are suited to be main system relief valves where precise pressure control is required. Some models are available with an integrated reverse free flow check.



Ventable Pilot Operated Spool Type

A ventable, pilot operated, spool type relief valve blocks flow from port 1 to 2 until there is sufficient pressure to overcome the spring force and move the poppet off the pilot seat. This creates a pressure differential across the spool, causing the spool to overcome a lighter spring and open the valve. This two-stage design allows for smooth operation at varying flows while maintaining a consistent setting. The vent port allows the valve setting to be controlled remotely using a pilot relief valve or a pilot proportional valve. The valve can also be opened at low pressure if the vent port is directed to tank through an external pilot valve. Refer to 'Two pressure system' in Typical Applications below.





Relief Valves Application Notes



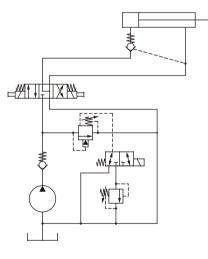
Relief Valve Comparison

Characteristic \ Type	Direct Acting Spool	Direct Acting Poppet	Direct Acting Damped Poppet	Differential Area Poppet	Pilot Operated Spool
Leakage	-	+	+	+	-
Pressure Rise	-	-	-	+	+
Hysteresis	+	+	+	-	-
Dirt Tolerant	-	+	-	+	-
Fast Acting	-	+	-	+	-
Stable	-	-	+	+	+
Relative Price [1 lowest]	4	2	3	1	5
Rule of Thumb	Charge relief	Limiting Pressure	Regulating, low flow, quiet	Limiting and Regulating pressure	Regulating pressure

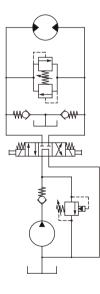
Application Recommendations

- All relief valves are designed to limit the pressure in a system.
- Poppet valves limit leakage to <10 drops per min [0.6 ml/min]. The valve will limit leakage up to 80% of the setting with increasing pressure and
 once open, below the re-seat value as the pressure decreases.
- Pilot operated spool valves will leak as the pressure increases because of the clearance between the spool and the sleeve [typically <100 ml/min].
- Direct acting valves feature a quick response and are good for reducing pressure spikes, while pilot operated valves have a slower response and are good for regulating pressure.
- Pressure setting is defined when a pre-determined flow is passing across the valve. Refer to the specific product for this value.
- When specifying the pressure setting, be aware the the pressure will increase as flow increases across the valve, which is known as pressure rise.
- Pressure in the tank line will increase the Pressure setting made at a 1 to 1 ratio.

Typical Applications



▲ Two Pressure System



A Motor Control

Relief Valves Quick Reference



Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	1DR2	SDC08-2	Relief valve, Direct Acting, Poppet Type	1.2 l/min [0.3 US gpm]	400 bar [5800 psi]	7
	1DR30	SDC08-2	Relief valve, Direct Acting, Poppet Type	30 l/min [8 US gpm]	400 bar [5800 psi]	8
	RV08-DR	SDC08-2	Relief Valve, Direct Acting, Poppet Type with Dampening	30 l/min [8 US gpm]	250 bar [3600 psi]	9
·	RV1-10	SDC10-2	Relief valve, Direct Acting, Poppet Type	30 l/min [8 US gpm]	250 bar [3600 psi]	10
	VEN 06	NCS06/2	Relief Valve, Direct Acting, Poppet Type with Dampening	40 l/min [11 US gpm]	315 bar [4600 psi]	11
	VME 08	VME 08	Relief Valve, Direct Acting, Poppet Type with Dampening	80 l/min [21 US gpm]	315 bar [4600 psi]	12
	RV1-12	C-12-2 / C-12-2U	Relief valve, Direct Acting, Poppet Type	114 l/min [30 US gpm]	350 bar [5000 psi]	13
	CP210-1	SDC10-2	Relief Valve, Direct Acting, Spool Type	45 l/min [12 US gpm]	210 bar [3000 psi]	14
	CP211-1	CP12-2	Relief Valve, Direct Acting, Spool Type	76 l/min [20 US gpm]	210 bar [3000 psi]	15
	1GR100	A881	Relief Valve, Direct Acting, Spool Type	150 l/min [40 US gpm]	350 bar [5000 psi]	16
Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	RV8-8	SDC08-2	Relief Valve, Differential Area, Poppet Type	30 l/min [8 US gpm]	350 bar [5000 psi]	17
	CP208-1	SDC08-2	Relief Valve, Differential Area, Poppet Type	40 l/min [11 US gpm]	250 bar [3600 psi]	18
	CP208-1 RV8-10	SDC08-2 SDC10-2				18 19
12			Poppet Type Relief Valve, Differential Area,	[11 US gpm] 76 l/min	[3600 psi] 350 bar	
	RV8-10	SDC10-2	Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area,	[11 US gpm] 76 l/min [20 US gpm] 76 l/min	[3600 psi] 350 bar [5000 psi] 250 bar	19
	RV8-10 CP200-1	SDC10-2 SDC10-2	Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area,	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar	19 20
	RV8-10 CP200-1 RV3-12	SDC10-2 SDC10-2 C-12-2/C-12-2U	Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area,	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min [35 US gpm] 150 l/min	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar [5000 psi] 250 bar	19 20 21
	RV8-10 CP200-1 RV3-12 CP201-1	SDC10-2 SDC10-2 C-12-2/C-12-2U CP12-2	Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Differential Area,	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min [35 US gpm] 150 l/min [40 US gpm] 300 l/min	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar	19 20 21 22
Image: Constraint of the second se	RV8-10 CP200-1 RV3-12 CP201-1 RV3-16	SDC10-2 SDC10-2 C-12-2/C-12-2U CP12-2 SDC16-2	Poppet Type Relief Valve, Differential Area, Poppet Type	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min [35 US gpm] 150 l/min [40 US gpm] 300 l/min [80 US gpm] 380 l/min	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar [5000 psi] 350 bar [3600 psi] 350 bar [5000psi] 350 bar	19 20 21 22 23
	RV8-10 CP200-1 RV3-12 CP201-1 RV3-16 1LR300	SDC10-2 SDC10-2 C-12-2/C-12-2U CP12-2 SDC16-2 A1126	Poppet Type Relief Valve, Differential Area, Poppet Type	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min [35 US gpm] 150 l/min [40 US gpm] 300 l/min [80 US gpm] 380 l/min [100 US gpm]	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar [5000 psi] 350 bar [5000 psi] 350 bar [5000 psi] 350 bar	19 20 21 22 23 24
	RV8-10 CP200-1 RV3-12 CP201-1 RV3-16 1LR300 Model No.	SDC10-2 SDC10-2 C-12-2/C-12-2U CP12-2 SDC16-2 A1126 Cavity	Poppet Type Relief Valve, Differential Area, Poppet Type	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min [35 US gpm] 150 l/min [40 US gpm] 300 l/min [80 US gpm] 380 l/min [100 US gpm] Flow* 114 l/min	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar [5000 psi] 350 bar [5000 psi] 350 bar [5000 psi] Pressure 350 bar	19 20 21 22 23 23 24 Page
Relief Valve	RV8-10 CP200-1 RV3-12 CP201-1 RV3-16 1LR300 Model No. RV5-10	SDC10-2 SDC10-2 C-12-2/C-12-2U CP12-2 SDC16-2 A1126 Cavity SDC10-2	Poppet Type Relief Valve, Differential Area, Poppet Type Relief Valve, Pilot operated, Spool Type Relief valve, Pilot operated,	[11 US gpm] 76 l/min [20 US gpm] 76 l/min [20 US gpm] 132 l/min [35 US gpm] 150 l/min [40 US gpm] 300 l/min [100 US gpm] Flow* 114 l/min [30 US gpm] 190 l/min	[3600 psi] 350 bar [5000 psi] 250 bar [3600 psi] 350 bar [5000 psi] 350 bar [5000 psi] Pressure 350 bar [5000 psi] Pressure	19 20 21 22 23 23 24 Page 25

*Flow ratings are for reference only. Refer to individual product page for performance information.

Relief Valves Quick Reference



Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	1ARD100	A881	Relief Valve, Pilot operated, Spool Type, Anti-Shock	100 l/min [26 US gpm]	210 bar [3000 psi]	29
Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	RV2-10	SDC10-2	Relief valve, Pilot Operated, Spool Type with Reverse Free Flow	114 l/min [30 US gpm]	350 bar [5000 psi]	30
	RV10-POP	SDC10-2	Relief valve, Pilot Operated, Spool Type with Reverse Free Flow	120 l/min [32 US gpm]	250 bar [3600 psi]	31
	1ARC100	A881	Relief valve, Pilot Operated, Spool Type with Reverse Free Flow	150 l/min [40 US gpm]	400 bar [5800 psi]	32
Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	1VR100	A3146	Relief Valve, Pilot Operated, Spool Type, Ventable	100 l/min [26 US gpm]	350 bar [5000 psi]	33
	1VR200	A16102	Relief Valve, Pilot Operated, Spool Type, Ventable	200 l/min [52 US gpm]	350 bar [5000 psi]	34
Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP200-7	SDC10-2	Relief Valve, Differential Area, Poppet Type, Bi-directional	40 l/min [11 US gpm]	250 bar [3600 psi]	35
	1CLLR100	A878	Relief Valve, Differential Area, Poppet Type, Bi-directional	150 l/min [40 US gpm]	350 bar [5000 psi]	36

Relief Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP220-1	Catalog HIC	Cross-Over Relief Valve, Line Mounted	76 l/min [20 US gpm]	250 bar [3600 psi]	37
C2 V2	CP221-1	Catalog HIC	Cross-Over Relief Valve, Line Mounted	150 l/min [40 US gpm]	250 bar [3600 psi]	38

*Flow ratings are for reference only. Refer to individual product page for performance information.





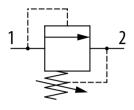
Relief Valves 1DR2

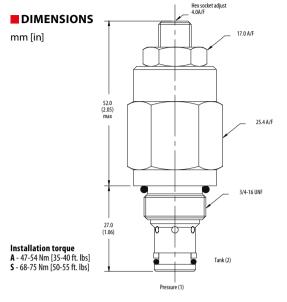
Relief valve, Direct Acting, Poppet Type

400 bar [5800 psi] • 1.2 l/min [0.3 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, pilot, poppet type relief valve that relieves from port 1 to 2. It can be used as a thermal relief or in conjunction with other valves as a pilot relief.

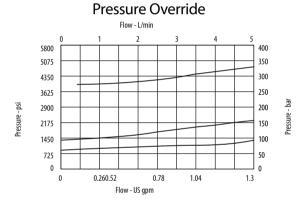




PERFORMANCE CURVES

PERFORMANCE DATA

Rated pressure	400 bar [5800 psi]
Rated flow	1.2 l/min [0.3 US gpm]
Leakage	0.3 ml/min nominal [5 drops/min]
Weight	0.14 kg [0.30 lb]
Cavity	SDC08-2



						Pressure S	Setting	
Basic Code 1DR2 - No Housing 1DR22 - Cartridge and housing Adjustment Option				<mark> Material</mark> .luminum/No housing eel	Code-Pressure setting in bar (5 bar increments within specifi Pressure Range) XXX-Standard setting (see Pressure Range for value) Example:		hin specified	
P - Exte				Seal Option		Code	Bar	Psi
R - Kno G - Tam	b per resistant			Code	Seal Kit	60	60	[870]
				S-Nitrile	SK187-02			
Housir	g			SV-Viton®	SK187-02V			
Code	Ports	Housing Model	Code	Denemo Denemo				
		Aluminum	Steel	Pressure Range Code Bar	Psi			
0mit		No Housing			100-1450]			
2W	1/4″ BSP	A1485		Standard Setting 70	[1015]			
3W	3/8″ BSP	A1043	A14175		500-3000]			
6T	3/8″ SAE	A15676	A14843	Standard Setting 100	[1450]			
		a ha usad far prossures la	ess than 210 bar [3000 psi		725-5800]			
	onal housings av		ess than 2 to bar [5000 psi	Standard Setting 280	[4060]			



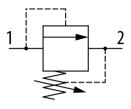
Relief Valves 1DR30

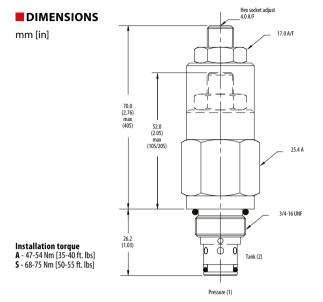
Relief valve, Direct Acting, Poppet Type

400 bar [5800 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, poppet type relief valve that relieves from port 1 to 2. It can be used as a cost-effective main relief or to protect an actuator from over-pressurization.



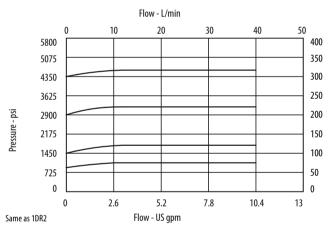


PERFORMANCE DATA

Rated pressure	400 bar [5800 psi]
Rated flow	30 l/min [8 US gpm]
Leakage	0.3 ml/min nominal [5 drops/min]
Weight	0.17 kg [0.37 lb]
Cavity	SDC08-2

PERFORMANCE CURVES

Pressure Override



Pressure - bar

MODEL CODE

							Pressure S	etting	
1DR35) - No Housing 5 - Cartridge and H	nousing				<mark>sing Material</mark> t - Aluminum/No housing	Code- Press (5 bar increa Pressure Rat XXX-Standa (see Pressur	ments wit 1ge) rd setting	hin specifie
	ment Option				377	- Steel	Example:	5	
P - Ext R - Kno				Seal O	ption		Code	Bar	Psi
	iper resistant			Code		eal Kit	60	60	[870]
				S-Nitri	ile S	K243			
Housi	ıg			SV-Vite		K243V			
	-	Housing Model (Code	Pressure Range					
Code	Ports								
Code	Ports	Aluminum	Steel	Code	Bar	Psi			
Code Omit	Ports No Housing			10	7-100	[100-1450]			
				10 Standard Setting	7-100 70	[100-1450] [1015]			
0mit	No Housing	Aluminum		10	7-100 70 35-210	[100-1450]			

BC332375370104en-000202

Quick Reference

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Relief Valves RV08-DR

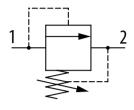
Relief Valve, Direct Acting, Poppet Type with Dampening

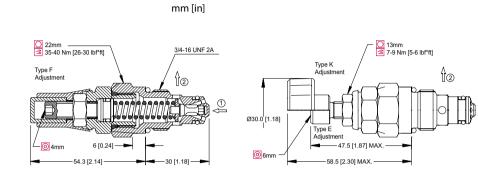
250 bar [3600 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, poppet type relief valve that relieves from port 1 to 2. It features a highly damped poppet for smooth and stable response. It can be used as a cost-effective main relief or to protect an actuator from over-pressurization.

SCHEMATIC



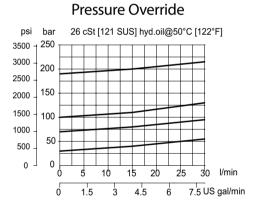


DIMENSIONS

PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	30 l/min [8 US gpm]
Leakage	10 drops/min @ 80% of Pressure Setting
Weight	0.10 kg [0.22 lb]
Cavity	SDC08-2

PERFORMANCE CURVES



Pressure Range							Harris		
Code	Bar	Psi					Housi	-	
1	20-80	[290-1150]					Code		y
Standard Setting	No	ot set					00	No Housing	No Housing
2	35-160	[510-2300]					DG2B	AI, 1/4 BSP	SDC08-2-DG-2B
Standard Setting		ot set					DG3B	AI, 3/8 BSP	SDC08-2-DG-3B
3	60-250						4S	AI, #4 SAE	CP08-2-4S
Standard Setting		t set					65	AI, #6 SAE	CP08-2-6S
								inum bodies are to be u ional housings available	sed for pressures less than 210
Adjustment Optio E - External F - Tamper resistant						500			
E - External							Option	Cool bid	
E - External F - Tamper resistant			Example:			Cod	l Option e	Seal kit	
E - External F - Tamper resistant K - Knob				Bar	Psi	Cod	l Option e una - N	Seal kit 354000119 354000219	

250 bar [3600 psi]

0.22 kg [0.48 lb]

SDC10-2

30 l/min [8 US gpm]

0.3 ml/min [5 drops/min] @ 85% of Pressure Setting



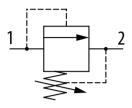
Relief Valves RV1-10

Relief valve, Direct Acting, Poppet Type

250 bar [3600 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, poppet type relief valve that relieves from port 1 to 2. It can be used as a cost-effective main relief or to protect an actuator from over-pressurization.



PERFORMANCE DATA

Rated pressure

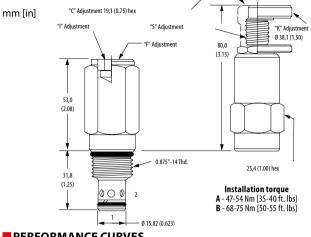
Rated flow

Leakage

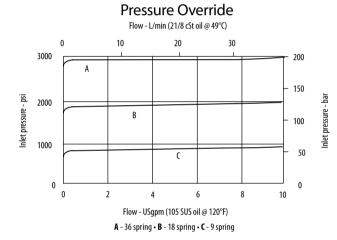
Weight

Cavity

DIMENSIONS



PERFORMANCE CURVES



							Pressure	Setting		
Seal O	otion									50 psi increment
Code	Seal Ki	t						ecified Pressu dard setting		Range for value)
B -Buna	i - N 565803		stment Option				Examples		(
V -Vitor	566086	C - Ta 	mper Resistant				Code		Bar	Psi
		I - In	ternal	Housing Material			10		69	[1000]
		K - K S - Fy	nop	Omit - Aluminum/No	Housing		10.5		72.4	[1050]
		J [/		S - Steel	liousing					
Housin										
	9						Pressure Range			
Code		Housing Mode	el Code				Code	Bar	Psi	
				Steel	_			Bar 3.5-20	Psi [50-300]	_
		Housing Mode Aluminum Standard Duty	Aluminum	Steel Heavy Duty	_		Code 3 Standard Setting	3.5-20 10.3	[50-300] [150]	
Code	Ports	Aluminum	Aluminum		_		Code 3 Standard Setting 9	3.5-20 10.3 7-62	[50-300] [150] [100-900]	_
Code 0	Ports No Housing	Aluminum Standard Duty	Aluminum Heavy Duty	Heavy Duty	-		Code 3 Standard Setting 9 Standard Setting	3.5-20 10.3 7-62 31	[50-300] [150] [100-900] [450]	_
Code 0 3B	Ports No Housing 3/8" BSP	Aluminum Standard Duty 02–175462	Aluminum Heavy Duty –	Heavy Duty –	- - -	[Code 3 Standard Setting 9	3.5-20 10.3 7-62	[50-300] [150] [100-900]	_
Code 0 3B 2G	Ports No Housing 3/8" BSP 1/4" BSP	Aluminum Standard Duty 02–175462 –	Aluminum Heavy Duty – 876702	Heavy Duty 		[Code 3 Standard Setting 9 Standard Setting 18	3.5-20 10.3 7-62 31 17-124	[50-300] [150] [100-900] [450] [250-1800]	_
Code 0 3B 2G 3G	Ports No Housing 3/8" BSP 1/4" BSP 3/8" BSP	Aluminum Standard Duty 02–175462 –	Aluminum Heavy Duty – 876702 876703	Heavy Duty - 02–175102 02–175103	- - - - -		Code 3 Standard Setting 9 Standard Setting 18 Standard Setting	3.5-20 10.3 7-62 31 17-124 62	[50-300] [150] [100-900] [450] [250-1800] [900]	_
Code 0 3B 2G	Ports No Housing 3/8" BSP 1/4" BSP	Aluminum Standard Duty 02–175462 –	Aluminum Heavy Duty – 876702	Heavy Duty 	- - - - -		Code 3 Standard Setting 9 Standard Setting 18 Standard Setting 30	3.5-20 10.3 7-62 31 17-124 62 34-210	[50-300] [150] [100-900] [450] [250-1800] [900] [600-3000]	_



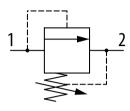
Relief Valves VEN 06

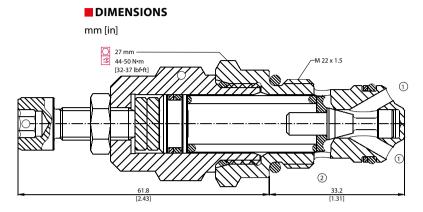
Relief Valve, Direct Acting, Poppet Type with Dampening

315 bar [4600 psi] • 40 l/min [11 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, poppet type relief valve that relieves from port 1 to 2. It features a highly damped poppet for smooth and stable response It can be used as a cost-effective main relief or to protect an actuator from over-pressurization.

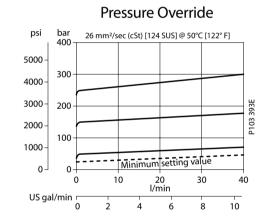




PERFORMANCE DATA

Rated pressure	315 bar [4600 psi]
Rated flow	40 l/min [11 US gpm]
Weight	0.20 kg [0.44 lb]
Cavity	NCS06/2

PERFORMANCE CURVES



							Pressure S	etting	
<mark>Adjustement Opti</mark> EN- External M- Calibrated Knob	on						Code -Presso increments v Range) XXX -Standar Range for va Example:	within speci rd setting (:	ified Pressure
					Seal Option		Code	Bar	Psi
					Code	Seal kit	60	60	[870]
					Omit-Buna-N	230000060			
Pressure Range					V -Viton	230000380			
Code	Bar	Psi		Housing					
1	20-80	[290-1150]		 Code	Ports & Materia	Housina N	Nodel Code		
Standard Setting	N	ot set		00	No Housing	No Housing		-	
2	35-160	[510-2300]		DG3/8	AL, 3/8 BSP	NCS06/2-D		-	
Standard Setting	N	ot set		DG1/2	AL, 1/2 BSP	NCS06/2-D			
3	70-315	[1015-4600]		DG6S	AL, #6 SAE	NCS06/2-D			
Standard Setting	N	ot set		DG8S	AL, #8 SAE	NCS06/2-D		_	



Relief Valves VME 08

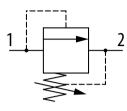
Relief Valve, Direct Acting, Poppet Type with Dampening

315 bar [4600 psi] • 80 l/min [21 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, poppet type relief valve that relieves from port 1 to 2. It features a highly damped poppet for smooth and stable response It can be used as a cost-effective main relief or to protect an actuator from over-pressurization.

DIMENSIONS

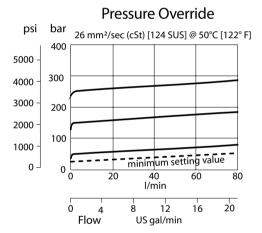


mm [in]

PERFORMANCE DATA

Rated pressure	315 bar [4600 psi]
Rated flow	80 l/min [21 US gpm]
Weight	0.35 kg [0.77 lb]
Cavity	VME08

PERFORMANCE CURVES



					Pre	ssure Setting		
Adjustment Opti EN-External					spec XXX	cified Pressure Range	n bar (5 bar increments :) ee Pressure Range for v	
M- Calibrated Kno	D				0	ode Bar	Psi	
Pressure Range						60 60	[870]	
Code	Bar	Psi			Seal Option			
1	25-80	[360-1150]			Code	Seal kit		
Standard Setting	Ν	lot set			Omit-Buna-N	230000140	-	
2	35-160	[510-2300]			V-Viton	Consult factory	-	
Standard Setting	Ν	lot set			• • • • •	consult fuctory	-	
3	70-315	[1015-4600]		Housing				
Standard Setting	Ν	lot set		Code	Ports & Material	Housing Model	Code	
		·		00	No Housing	No Housing		
				DG3/4	AL, 3/4 BSP	VME08-DG-3/4		
				DG12S	AL, #12 SAE	VME08-DG-12S		



350

315

280

245

210 drop - I

175

140 Pressure

105

70

35

30 35 bar

Relief Valves RV1-12

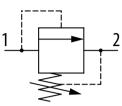
Relief valve, Direct Acting, Poppet Type

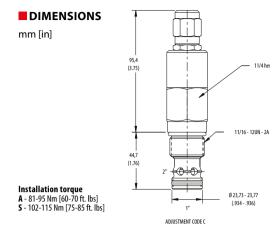
350 bar [5000 psi] • 114 l/min [30 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting, poppet type relief valve that relieves from port 1 to 2. It can be used as a cost-effective main relief or to protect an actuator from over-pressurization.

SCHEMATIC





PERFORMANCE CURVES

0

0 5

Pressure Override Flow - L/min 132 38 60 114 5000 4500 4000 3500 Pressure Drop - psi 3000 В 2500 2000 1500 1000 c 500 D

10

Rated pressure

PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	114 l/min [30 US gpm]
Leakage	5 drops/min @ 80% of pressure setting
Weight	0.49 kg [1.08 lb]
Cavity	C-12-2 or C-12-2U

GPM **A** - 40 spring • **B** - 22 spring • **C** - 8.5 spring • **D** - 2.5 spring

15 20 25

MODEL CODE

	• •										
	Option	e 1100						Pressu	re Setting		
Code	-	Seal Kit						Code	100 - Pressu	ire setting	in psi
	t-Buna - N	02-165881						(50 psi Range)		vithin spe	cified Pressure
V -Vit	on	02-165888						XXX-St		ng (see Pre	essure Range for
Adju	stment Op	tion						value) Exampl	es:		
	Imper Resist	ant						Code		Bar	Psi
F - Fi K - K								10		69	[1000]
S - Ex	cternal							10.5		72.4	[1050]
	ing Materi										
0mi	t - No Housi							Prossure Range			
Omi A - A	t - No Housi Iuminum							Pressure Range	Bar	Ps	
0mi A - A S - St	t - No Housi Iuminum ceel							Pressure Range Code 2.5	Bar 3.4-17	Ps [50-2	
Omit A - A S - St Hous	t - No Housi Iuminum ceel iing	ng	l Code					Code		Ps [50-2 [12!	50]
Omit A - A S - St Hous	t - No Housi Iuminum ceel	ng Housing Mode		(-12-2	C-12-2U			Code 2.5	3.4-17	[50-2	50] 5]
Omit A - A S - St Hous	t - No Housi Iuminum ceel iing	ng Housing Mode C-12-2 Aluminum	C-12-2U Aluminum	C-12-2 Steel	C-12-2U Steel			Code 2.5 Standard Setting 8.5 Standard Setting	3.4-17 8.6 13-55 29	[50-2 [12: [200-8 [42:	50] 5] 350] 5]
Omit A - A S - St Hous Code	t - No Housi luminum ceel sing e Ports	ng Housing Mode C-12-2 Aluminum Heavy Duty	C-12-2U					Code 2.5 Standard Setting 8.5 Standard Setting 22	3.4-17 8.6 13-55 29 20-150	[50-2 [12: [200-8 [42: [300-2	50] 5] 350] 5] 200]
Omit A - A S - St Hous Code	t - No Housi Iuminum ceel iing	ng Housing Mode C-12-2 Aluminum Heavy Duty	C-12-2U Aluminum	Steel	Steel	 ;y		Code 2.5 Standard Setting 8.5 Standard Setting 22 Standard Setting	3.4-17 8.6 13-55 29 20-150 76	[50-2 [12: [200-8 [42: [300-2 [110	50] 5] 350] 5] 200] 0]
Omit A - A S - St Hous Code	t - No Housi luminum ceel sing e Ports	ng Housing Mode C-12-2 Aluminum Heavy Duty	C-12-2U Aluminum	Steel	Steel	y		Code 2.5 Standard Setting 8.5 Standard Setting 22 Standard Setting 40	3.4-17 8.6 13-55 29 20-150 76 40-275	[50-2 [12: [200-8 [42: [300-2 [110 [600-4	50] 5] 350] 5] 200] 0] 00]
Omit A - A S - St Hous Code Omit 4G	t - No Housi luminum ceel :ing Ports t No Housir	ng Housing Mode C-12-2 Aluminum Heavy Duty 1g	C-12-2U Aluminum Heavy Duty	Steel Heavy Duty	Steel Heavy Du	y		Code 2.5 Standard Setting 8.5 Standard Setting 22 Standard Setting	3.4-17 8.6 13-55 29 20-150 76	[50-2 [12: [200-8 [42: [300-2 [110	50] 5] 350] 5] 200] 0] 00]
Omit A - A S - St Hous Code	t - No Housi luminum eel ing Ports No Housir 1/2" BSP	ng Housing Mode C-12-2 Aluminum Heavy Duty Ig 02-161118	C-12-2U Aluminum Heavy Duty 02-161116	Steel Heavy Duty 02-172062	Steel Heavy Du	y	Cavity	Code 2.5 Standard Setting 8.5 Standard Setting 22 Standard Setting 40	3.4-17 8.6 13-55 29 20-150 76 40-275	[50-2 [12: [200-8 [42: [300-2 [110 [600-4	50] 5] 350] 5] 200] 0] 00]

BC332375370104en-000202

Danfoss

Relief Valves CP210-1

Relief Valve, Direct Acting, Spool Type

210 bar [3000 psi] • 45 l/min [12 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting spool, type relief valve that relieves from port 1 to 2. It has been designed to give stable performance at lower pressure and can be used as a purge relief, bypass filter elements or in applications that require better control.

PERFORMANCE DATA

Rated pressure	210 bar [3000 psi]
Rated flow	45 l/min [12 US gpm]
Leakage	82 ml/min [5 in ³ /min] @ 80% of Pressure Setting
Weight	0.22 kg [0.48 lb]
Cavity	SDC10-2

PERFORMANCE CURVES

154 SUS (33 cSt) hyd. oil @ 100° F (38° C) psi bar 2,031 140 1,740 120 1,450 100 1,160 분 80 essu 870 60 580 40 290 20 0 L/min 10 20 30 40 50 60 Flow US gal/min 2.6 5.3 7.9 10.6 13.2 15.9

Pressure Override

MODEL CODE

Seal Op	tion					Pressure Set	ting	Example		
CodeSeal kitB-Buna - N120015						Code x10 - Pre			Bar	Psi
						psi (50 psi incre specified Press	n075	52	[750]	
V -Viton	120016					XXX-Standard Pressure Range				
Housing	I					riessure nalige	ioi value)			
Code	Ports & Material	Housing Model Code								
0	No Housing	No Housing				_				
DG3B	AL, 3/8 BSP	SDC10-2-DG-3B				Pressure Range				
DG4B	AL, 1/2 BSP	SDC10-2-DG-4B				Code	Bar	Psi		
6S	AL, #6 SAE	CP10-2-6S				A Standard Setting	3.4-28 17	[50-400] [250]		
85	AL, #8 SAE	CP10-2-8S				B	5.5-55	[80-800]		
* Alumin	um bodies are to be used	for pressures less than 210 bar [30	000 psi].			Standard Setting	28	[400]		
*Additior	nal housings available					C	6.9-97 52	[100-1400]		
Adjuste	ent Option					Standard Setting	52	[750]		

BC332375370104en-000202

Danfoss

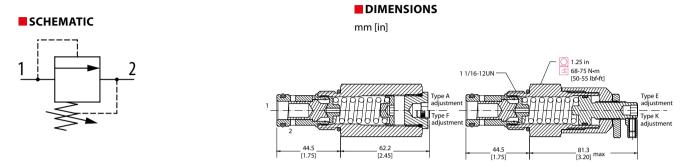
Relief Valves CP211-1

Relief Valve, Direct Acting, Spool Type

210 bar [3000 psi] • 76 l/min [20 US gpm]

DESCRIPTION AND OPERATION

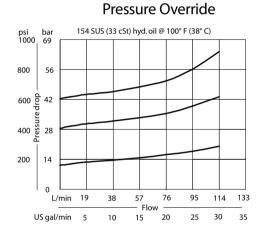
This is a direct acting spool, type relief valve that relieves from port 1 to 2. It has been designed to give stable performance at lower pressure and can be used as a purge relief, bypass filter elements or in applications that require better control.



PERFORMANCE DATA

Rated pressure	210 bar [3000 psi]
Rated flow	76 l/min [20 US gpm]
Max Pressure Setting	41 bar [600 psi]
Leakage	82 ml/min [5 in ³ /min] @ 80% of Pressure Setting
Weight	0.41 kg [0.90 lb]
Cavity	CP12-2

PERFORMANCE CURVES



							Pressure	e Setting	I	Example:		
Seal Op) - Pressure		Code	Bar	Psi
Code Seal kit							in psi (50 within sp	040	28	[400]		
B -Buna	- N 120017						Range)					
V -Viton	120018							ıdard settir Range for v				
							Pressure Range					
Housin	9					'	Code	Bar	Psi	_		
Code	Ports & Material	Housing Model Code	_				A Standard Setting	0-10.3 7	[0-150] [100]			
0	No Housing	No Housing	_				B	3.4-34	[50-400]			
4B	AL, 1/2 BSP	CP12-2-4B	_				Standard Setting	21	[300]			
6B	AL, 3/4 BSP	CP12-2-6B					C	5.2-41	[80-600]			
10S	AL, #10 SAE	CP12-2-10S	-				Standard Setting	28	[400]			
125	AL, #12 SAE	CP12-2-12S	-			Adjustm	ent Option					

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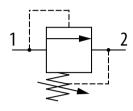
Relief Valves 1GR100

Relief Valve, Direct Acting, Spool Type

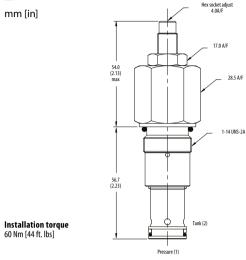
350 bar [5000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

This is a direct acting spool, type relief valve that relieves from port 1 to 2. It has been designed to give stable performance at lower pressure and can be used as a purge relief, bypass filter elements or in applications that require better control.



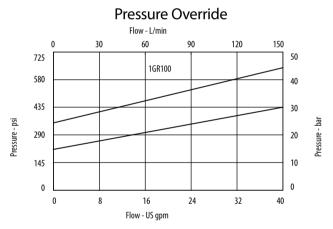




PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	150 l/min [40 US gpm]
Max Pressure Setting	40 bar [580 psi]
Leakage	15 ml/min nominal
Weight	0.31 kg [0.7 lb]
Cavity	A881

PERFORMANCE CURVES



Basic Code									Pressure S	etting	
1GR150 - Carte Thro 1GR155 - Carte	idge and housi idge and housi ugh Ported	ng P-I R-I	ustment Op External Knob Tamper resist				Housing A Omit - Alu 377 - Stee	minum/No housing	Code-Press (5 bar incre specified Pr XXX-Standa (see Pressur Example:	ments with essure Ran ard setting	hin Ige)
	5								Code	Bar	Psi
Housing						Seal Opt			60	60	[870]
Code Ports	Housing M	odel Code				Code	Seal K	it			
	Aluminum	Aluminum	Steel	Aluminum	Steel	S-Nitrile	SK190				
	1GR145	1GR150	1GR150	1GR155	1GR155	SV-Viton	SK190	/			
Omit No Hous	ing					Pressure Range					
3W 3/8" BSF	1	C1084				Code	Bar	Psi			
4W 1/2" BSF	B4851	C1044	C593			0.6	0.3-6	[4.3-90]			
6W 3/4" BSF	B3954	C1086	C4917			Standard Setting	<u>6</u> 5-25	[90] [75-360]			
8W 1" BSP				B1617	B4596	Z Standard Setting	20	[290]			
6T 3/8" SAE		B10784				4.8	5-40	[75-580]			
8T 1/2" SAE		C7140				Standard Setting	28	[400]			
						Pressure setting made					



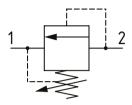
Relief Valves RV8-8

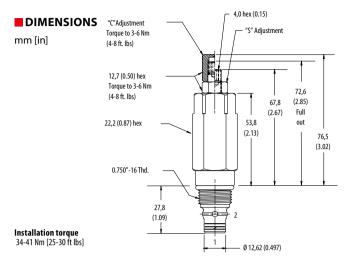
Relief Valve, Differential Area, Poppet Type

350 bar [5000 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from over pressurization or to remove pressure spikes.

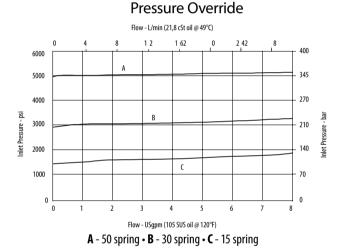




PERFORMANCE CURVES

PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	30 l/min [8 US gpm]
Leakage	5 drops/min @ 80% of cracking pressure
Weight	0.20 kg [0.43 lb]
Cavity	SDC08-2



Seal 0	ption								Pressure	Settina		
Code	Seal H	(it									setting in psi	
0mit-	Buna - N 02-165	5874	Adjustr	ment Option					(100 psi i	ncrements v	vithin specified P	ressure Range)
V-Vito	n 02-165	5877		per Resistant			_		Example:		g (see Pressure Ra	inge for value)
			K - Knoł S - Exter			Material			Code	Bar	Psi	
Housir	g				Omit - N S - Steel A - Alumi	o Housing num			15	103	[1500]	
Code	Ports	Housing	j Model (Code				 J				
		Aluminu		Steel					Pressure Range			
				Steel								
		Heavy D		Heavy Duty	,				Code	Bar	Psi	
0	No Housing								Code 15	3.4-100	[50-1500]	
	No Housing #4 SAE		uty		'				Code 15 Standard Setting	3.4-100 52	[50-1500] [750]	
4T		Heavy D	30	Heavy Duty					Code 15 Standard Setting 30	3.4-100 52 70-210	[50-1500] [750] [1000-3000]	
0 4T 6T 8T	#4 SAE	Heavy D	30 31	Heavy Duty 02-160736					Code 15 Standard Setting 30 Standard Setting	3.4-100 52 70-210 103	[50-1500] [750] [1000-3000] [1500]	
4T 6T	#4 SAE #6 SAE	Heavy D 02-16073 02-16073	30 31 32	Heavy Duty 02-160736 02-160737	·				Code 15 Standard Setting 30	3.4-100 52 70-210	[50-1500] [750] [1000-3000]	

Danfoss

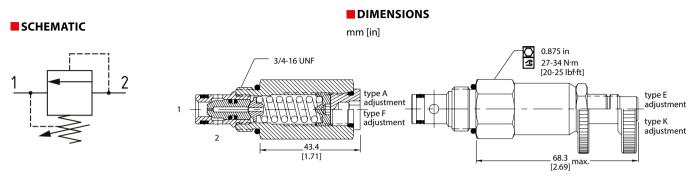
Relief Valves CP208-1

Relief Valve, Differential Area, Poppet Type

250 bar [3600 psi] • 40 l/min [11 US gpm]

DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from over-pressurization or to remove pressure spikes.

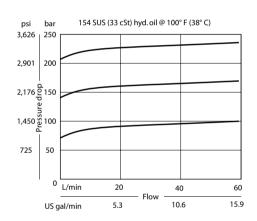


PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	40 l/min [11 US gpm]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.15 kg [0.32 lb]
Cavity	SDC08-2

PERFORMANCE CURVES

Pressure Override



e. 1.					
Code	Seal kit				
B -Buna-N	120227			sure Setting	•
V -Viton	120228				e setting in psi (50 psi specified Pressure Range)
Housing				Standard setti	ng (see Pressure Range for
Code	Ports & Material	Housing Model Code		•	
D	No Housing	No Housing		de Bar	Psi
DG2B	AL, 1/4 BSP	SDC08-2-DG-2B		50 103	[1500]
DG2B	AL, 3/8 BSP	SDC08-2-DG-3B			
4S	AL, #4 SAE	CP08-2-45	Pressure Range		
6S	AL, #6 SAE	CP08-2-65	Code	Bar	Psi
* Aluminun	n bodies are to be used	for pressures less than 210 bar	Additional housings available A	7-69	[100-1000]
			Standard Setting		[400]
Adjustme	nt Option		В	14-138	[200-2000]
A - Internal			Standard Setting	69 35-250	[1000] [500-3600]



Relief Valves RV8-10

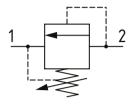
Relief Valve, Differential Area, Poppet Type

350 bar [5000 psi] • 76 l/min [20 US gpm]

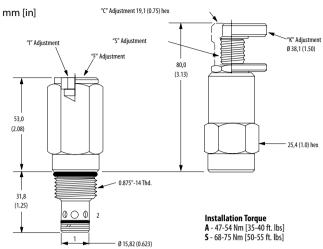
DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from over pressurization or to remove pressure spikes.

SCHEMATIC



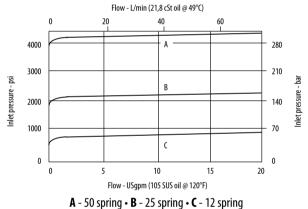
DIMENSIONS



PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	76 l/min [20 US gpm]
Leakage	0.3 ml/min [5 drops/min] @ 85% of Pressure Setting
Weight	0.22 kg [0.48 lb]
Cavity	SDC10-2

PERFORMANCE CURVES



MODEL CODE

Seal	Configuration					Pressu
	t - Single back-up rin own	g Seal Option				Code
A - 1	/2 thickness back-up	Code	Seal Kit			increm XXX-S
	on each side of o-ring ross port relief	Omit -Buna - N	565803	Adjustment Option		value) Examp
	ications)	V -Viton	566086	C - Tamper Resistant F - Fixed		Code
				K - Knob Housing Material		10
				S - External Omit - Aluminum/N I - Internal S - Steel	o housing	10.5
Hou	sing			2 - 51661		10.5
Code	e Ports	Housing Model Cod	le			Pressure Rang
		Aluminum	Aluminum			Code
		Aluminum Standard Duty	Aluminum Heavy Dut			4
0					_	4 Standard Sett
0 3B	No Housing				_	4 Standard Sett 12
-	No Housing 3/8″ BSP	Standard Duty				4 Standard Sett 12 Standard Sett
3B	No Housing 3/8″ BSP 1/4″ BSP	Standard Duty 02–175462	Heavy Dut	ty Heavy Duty –		4 Standard Sett 12 Standard Sett 25
3B 2G	No Housing 3/8" BSP 1/4" BSP 3/8" BSP	Standard Duty 02–175462 –	Heavy Dut	ry Heavy Duty 02_175102		4 Standard Sett 12 Standard Sett
3B 2G 3G	No Housing 3/8" BSP 1/4" BSP 3/8" BSP #6 SAE	Standard Duty 02–175462 – –	Heavy Dut	ry Heavy Duty 02–175102 02–175103	-	4 Standard Sett 12 Standard Sett 25 Standard Sett 50
3B 2G 3G 6H	No Housing 3/8" BSP 1/4" BSP 3/8" BSP #6 SAE #8 SAE	Standard Duty 02–175462 – – –	Heavy Dut	ry Heavy Duty 02–175102 02–175103		4 Standard Sett 12 Standard Sett 25 Standard Sett 50 Standard Sett

<u>4</u> - <u>1</u>	<u>0</u>							
	Pressure S	etting						
	Code x100 - Pressure setting in psi (50 psi increments within specified Pressure Range) XXX -Standard setting (see Pressure Range for value) Example:							
	Code		Bar	Psi				
	10		69	[1000]				
	10.5		72.4	[1050]				
Pressure	e Range							
	ode	Bar	Psi	_				
	4	3.45-30	[50-450]					
Standa	rd Setting	15.5	[225]	_				
	12	7-86	[100-1250]					
Standa	rd Setting	43	[625]	_				
	25	17-175	[250-2500]					
		07	[1350]					
Standa	rd Setting	86	[1250]	_				

172

[2500]

d for pressures less than 210 bar [3000 psi].



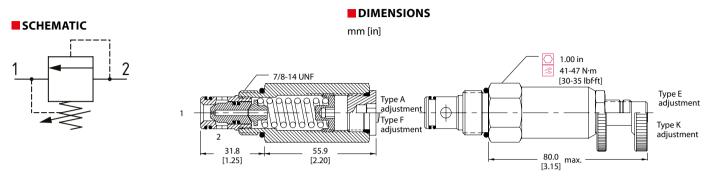
Relief Valves CP200-1

Relief Valve, Differential Area, Poppet Type

250 bar [3600 psi] • 76 l/min [20 US gpm]

DESCRIPTION AND OPERATION

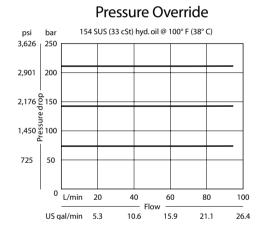
This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from over-pressurization or to remove pressure spikes.



PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	76 l/min [20 US gpm]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.21 kg [0.46 lb]
Cavity	SDC10-2

PERFORMANCE CURVES



Seal Op				J							
Code	Seal kit					Proces	ire Settin		Example:		
B -Buna-	N 120015						(10 - Pressu	•	· ·		
V -Viton	120016					setting		le	Code	Bar	Psi
						(50 psi	increments		150	103	[1500]
Housing	l					specifie	ed Pressure andard sett	Range) ing (see			
Code	Ports & Material	Housing Model Code					e Range for				
0	No Housing	No Housing					-				
DG3B	AL, 3/8 BSP	SDC10-2-DG-3B				Pressure Range					
DG4B	AL, 1/2 BSP	SDC10-2-DG-4B			L	Code	Bar	Psi			
6S	AL, #6 SAE	SDC10-2-6S				A	7-55	[100-800]			
85	AL, #8 SAE	SDC10-2-85				Standard Setting	28	[400]			
* Alumin		for pressures less than 210 bar [000 ncil			В	17-138	[200-2000]]		
	nal housings available		1000 þ3ij.			Standard Setting	69	[1000]	<u> </u>		
	5					C	41-250	[600-3600]	J		
Adjustm	ent Option					Standard Setting	103	[1500]			



Relief Valves RV3-12

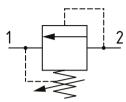
Relief Valve, Differential Area, Poppet Type

350 bar [5000 psi] • 132 l/min [35 US gpm]

DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from over pressurization or to remove pressure spikes.

SCHEMATIC

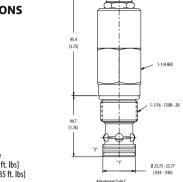


PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	132 l/min [35 US gpm]
Leakage	5 drops/min @ 80% of Pressure Setting
Weight	0.49 kg [1.08 lb]
Cavity	C-12-2/C-12-2U

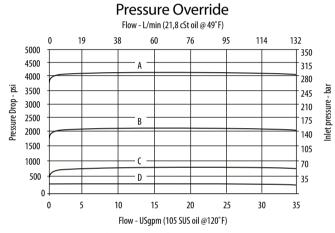


mm [in]



Installation Torque A - 81-95 Nm [60-70 ft. lbs] **S** - 102-115 Nm [75-85 ft. lbs]

PERFORMANCE CURVES



A - 40 spring • **B** - 22 spring • **C** - 8.5 spring • **D** - 2.5 spring

				T				Pressu	re Range		
Seal O	ption									re setting in ps	
Code		Seal Kit								pecified Pressung (see Pressung)	
0mit-	Buna - N	02-165889						for valu Exampl			-
V -Vito	n	02-165888						Code	es.	Bar	Psi
Adjust	tment Opti	ion						10		69	[1000]
	nper Resista	nt						10		72.4	[1050]
F - Fixe K - Kno								10.5		/2.4	[1030]
S - Ext								Pressure Range			
Houri	ng Materia							Code	Bar	Psi	
								2.5	3.4-17	[50-250]	
Omit - A - Alu	No Housin minum							Standard Setting	8.6	[125]	_
Omit - A - Alu S - Ste	· No Housin minum el							Standard Setting 8.5	8.6 13-55	[125]	
Omit - A - Alu S - Ste	· No Housin minum el							Standard Setting 8.5 Standard Setting	8.6 13-55 29	[125] [200-850] [425]	_
Omit - A -Alu S - Ste Housi	• No Housin minum el 1g		del Code					Standard Setting 8.5 Standard Setting 22	8.6 13-55 29 20-150	[125] [200-850] [425] [300-2200]	_
Omit - A -Alu S - Ste Housi	• No Housin minum el 1g	g Housing Mo C-12-2	C-12-2U	C-12-2	C-12-2U			Standard Setting 8.5 Standard Setting 22 Standard Setting	8.6 13-55 29 20-150 76	[125] [200-850] [425] [300-2200] [1100]	_
Omit - A -Alu S - Ste Housi	• No Housin minum el 1g	g Housing Moo C-12-2 Aluminum	C-12-2U Aluminum	Steel	Steel	-		Standard Setting 8.5 Standard Setting 22 Standard Setting 40	8.6 13-55 29 20-150 76 40-275	[125] [200-850] [425] [300-2200] [1100] [600-4000]	_
Omit - A -Alu S - Ste Housin Code	No Housin minum el 1g Ports	g Housing Mo C-12-2 Aluminum Heavy Duty	C-12-2U					Standard Setting 8.5 Standard Setting 22 Standard Setting	8.6 13-55 29 20-150 76	[125] [200-850] [425] [300-2200] [1100]	_
Omit - A -Alui S - Ste Housii Code	No Housin minum el ng Ports No Housing	g Housing Mod C-12-2 Aluminum Heavy Duty	C-12-2U Aluminum Heavy Duty	Steel Heavy Duty	Steel Heavy Duty	-	Cavity	Standard Setting 8.5 Standard Setting 22 Standard Setting 40	8.6 13-55 29 20-150 76 40-275	[125] [200-850] [425] [300-2200] [1100] [600-4000]	_
Omit - A -Alur S - Ste Housin Code Omit 4G	No Housin minum el ng Ports No Housing 1/2″ BSP	g Housing Mod C-12-2 Aluminum Heavy Duty g 02-161118	C-12-2U Aluminum Heavy Duty 02-161116	Steel Heavy Duty 02-172062	Steel Heavy Duty 02-172512	-		Standard Setting 8.5 Standard Setting 22 Standard Setting 40	8.6 13-55 29 20-150 76 40-275 138	[125] [200-850] [425] [300-2200] [1100] [600-4000] [2000]	_
Omit - A -Alur S - Ster Housin Code Omit 4G	No Housin minum el ng Ports No Housing	g Housing Mod C-12-2 Aluminum Heavy Duty	C-12-2U Aluminum Heavy Duty	Steel Heavy Duty	Steel Heavy Duty	-	Omit -Cav	Standard Setting 8.5 Standard Setting 22 Standard Setting 40 Standard Setting	8.6 13-55 29 20-150 76 40-275 138	[125] [200-850] [425] [300-2200] [1100] [600-4000] [2000]	_
Omit - A - Aluı S - Ster Housin Code Omit 4G 6G	No Housin minum el ng Ports No Housing 1/2″ BSP	g Housing Mod C-12-2 Aluminum Heavy Duty g 02-161118	C-12-2U Aluminum Heavy Duty 02-161116	Steel Heavy Duty 02-172062	Steel Heavy Duty 02-172512	- - - - * Aluminum bec	Omit -Cav U - Cavity	Standard Setting 8.5 Standard Setting 22 Standard Setting 40 Standard Setting vity without undercut/	8.6 13-55 29 20-150 76 40-275 138	[125] [200-850] [425] [300-2200] [1100] [600-4000] [2000]	_

Danfoss

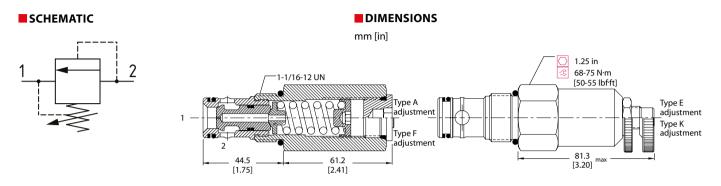
Relief Valves CP201-1

Relief Valve, Differential Area, Poppet Type

250 bar [3600 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from over-pressurization or to remove pressure spikes.

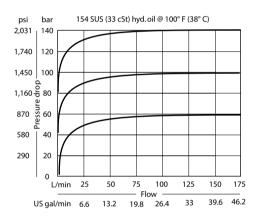


PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	150 l/min [40 US gpm]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.42 kg [0.92 lb]
Cavity	CP12-2

PERFORMANCE CURVES

Pressure Override



Seal Opt	ion				Pressur	e Setting		
Code	Seal kit						etting in psi (50 psi i	ncrements
B -Buna-	N 120017				within sp XXX-Star	ecified Press	ure Kange) (see Pressure Range	for value)
V -Viton	120018				Example		(j-	,
					Code	Bar	Psi	
Housing					150	103	[1500]	
Code	Ports & Material							
0	No Housing	No Housing			Pressure Range			
4B	AL, 1/2 BSP	CP12-2-4B				D	D .:	
6B	AL, 3/4 BSP	CP12-2-6B			<u>Code</u>	Bar 7-69	Psi [100-1000]	
105	AL, #10 SAE	CP12-2-10S			Standard Setting	28	[400]	
125	AL, #12 SAE	CP12-2-12S			В	17-172	[250-2500]	
	,		2000 pcil * Additional	housings available	Standard Setting	69	[1000]	
Alumini	IIII DOUIES AIE LO DE USEC	for pressures less than 210 bar [sooo psij. Additional	nousings available	C	35-250	[500-3600]	
Adjustm	ent Option				Standard Setting	103	[1500]	
A - Intern								
E - Extern	al							

0,71 kg [1.57 lbs]

SDC16-2

Index



Relief Valves RV3-16

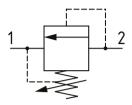
Relief Valve, Differential Area, Poppet Type

350 bar [5000 psi] • 300 l/min [80 US gpm]

DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from overpressurization or to remove pressure spikes.

SCHEMATIC

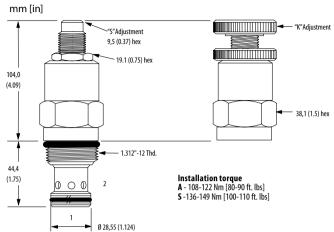


PERFORMANCE DATA

Weight

Cavity

DIMENSIONS



PERFORMANCE CURVES



			Press		Verric				
	6000	50	100	150	200	250	—	5	
	5000						35		
psi	4000				A		28		bar
Inlet pressure - psi	3000						21	D	inlet pressure - bar
Inlet pr	2000				В		- 14	D	Inlet pr
	1000								
	0								
		0	20 Flow - USgp	40 om (105 SUS	60 ا^5 oil @ 120		80		
		A - 5	i0 spring	• B - 35	spring				

	ion							
Code	Seal kit	۸dius	tment Option					
Omit -Bu	na-N 565810		nper Resistant			e Setting		
/-Viton	889609	K - Kn	ob		Code x1	0 - Pressure	e setting in psi (50 p ssure Range)	si increments
			ternal Housing	Material			ng (see Pressure Rai	nge for value)
				luminum/No housin	Example		5.	
			S - Steel		Code	Bar	Psi	
					10	70	[1000]	
Housing					10.5	72.4	[1050]	
Code	Ports	Aluminum Standard duty	Aluminum Heavy duty	Steel Heavy duty				
)	No Housing				Pressure Range			
5B	3/4″ BSP	02-175463			Code	Bar	Psi	
1G	1/2″ BSP		876716	02-175106	5	3,5-35	[50-500]	
					Standard Setting	15.5	[225]	
5G	3/4″ BSP		876718	02–175107	13	35-90	[300-1300]	
IOH	#10 SAE		876717		Standard Setting	34.5	[500]	
12H	#12 SAE		866113		35	83-240	[1200-3500]	
IOT	#10 SAE		566113	02-175104	Standard Setting	79	[1150]	
		566149		02-175105	50 Standard Setting	140-350 103	[2000-5000] [1500]	



Relief Valves 1LR300

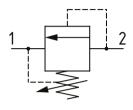
Relief Valve, Differential Area, Poppet Type

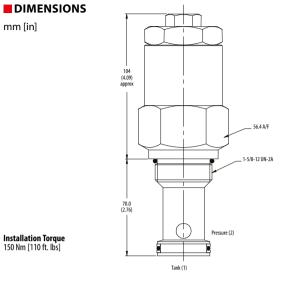
350 bar [5000 psi] • 380 l/min [100 US gpm]

DESCRIPTION AND OPERATION

This is a fast acting, differential area, poppet type relief valve that relieves from port 2 to 1. It can be used to protect an actuator from overpressurization or to remove pressure spikes.

SCHEMATIC





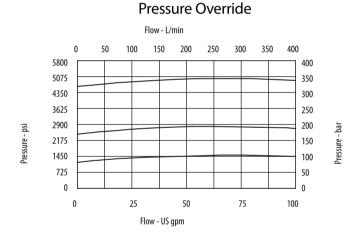
Installation Torque 150 Nm [110 ft. lbs]

mm [in]

PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	380 l/min [100 US gpm]
Leakage	1 ml/min nominal [15 drops/min]
Weight	1.04 kg [2.3 lb]
Cavity	A1126

PERFORMANCE CURVES



Basic Code								Pressure S	Settina	
1LR300 - No Housi 1LR350 - Cartridge Adjustment Opti F - External	and housing					Housing N Omit - Alu 377 - Steel	minum/No housing	Code-Press (5 bar increi Pressure Ra XXX-Standa (see Pressur Example:	sure settin ments wit nge) ard setting	hin specifie
LATCHING								Code	Bar	Psi
					Seal Optio	n		60	60	[870]
Housing					Code	Seal	(it			
Code Ports	Housing Model (Code			S -Nitrile	SK207				
	Aluminum	Steel			SV-Viton	SK207	V			
				Pressure	Range					
Omit No Housing						Bar	Psi			
Omit No Housing	B5134	B882			ode	Dui				



Relief Valves RV5-10

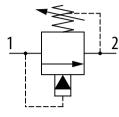
Relief valve, Pilot operated, Spool Type

350 bar [5000 psi] • 114 l/min [30 US gpm]

DESCRIPTION AND OPERATION

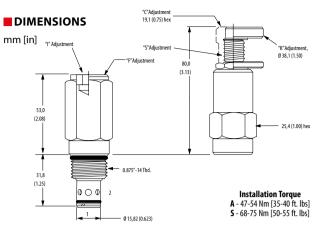
This is a pilot operated, spool type relief valve that relieves from port 1 to port 2. It can be used to limit pressure in a system while maintaining accurate pressure control with constant or varying flows.

SCHEMATIC

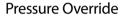


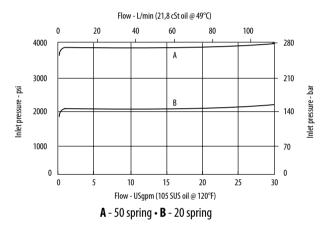
PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	114 l/min [30 US gpm]
Leakage	114 ml/min [7 ln ³ /min] @ 350 bar [5000 psi]
Weight	0.22 kg [0.48 lb]
Cavity	SDC10-2

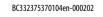


PERFORMANCE CURVES





			RV5 - <u>A</u> -					
Seal C	onfiguratio	n				Pressu	re Setting	
A - 1/2	thickness ba (for cross por ption	-up ring as shown ick-up ring on each side of t relief applications) ieal kit				Code x (50 psi Pressur	100 - Pressur increments w e Range) andard settin ie)	e setting in psi vithin specified g (see Pressure Range
			Adjustment Option					
-		65803	C - Tamper Resistant			Code	Bar	Psi
V -Vito	n s	65806		using Material		10	69	[1000]
			K - Knob S -	nit - Aluminum/No hous	sing	10.5	72.4	[1050]
			S - External	Sleer				
Housir	Ig		S - External	Steel		Pressure Range		
	ig Ports	Housing Model Code	S - External	51661		Code	Bar	Psi
	-	Housing Model Code Aluminum Standard Duty	S - External Aluminum Heavy Dut		-	Code 3	3.4-20	[50-300]
	-	Aluminum Standard Duty			-	Code	3.4-20 10.3	[50-300] [150]
Code 0	Ports	Aluminum Standard Duty			-	Code 3 Standard Setting	3.4-20	[50-300]
Code 0 3B	Ports No Housing	Aluminum Standard Duty	Aluminum Heavy Dut	y Steel Heavy Duty	-	Code 3 Standard Setting 20	3.4-20 10.3 7-140	[50-300] [150] [100-2000]
	Ports No Housing 3/8" BSP	Aluminum Standard Duty 02–175462	Aluminum Heavy Dut	y Steel Heavy Duty –	- - - -	Code 3 Standard Setting 20 Standard Setting	3.4-20 10.3 7-140 69	[50-300] [150] [100-2000] [1000]
Code 0 3B 2G 3G	Ports No Housing 3/8″ BSP 1/4″ BSP	Aluminum Standard Duty 02–175462 –	Aluminum Heavy Dut	y Steel Heavy Duty - 02–175102	- - - - -	Code 3 Standard Setting 20 Standard Setting 35 Standard Setting 50	3.4-20 10.3 7-140 69 17-240 121 35-350	[50-300] [150] [100-2000] [1000] [250-3500] [1750] [500-5000]
Code 0 3B 2G	Ports No Housing 3/8" BSP 1/4" BSP 3/8" BSP	Aluminum Standard Duty 02–175462 –	Aluminum Heavy Dut 876702 876703	 Steel Heavy Duty - 02–175102 02–175103 	- - - - - -	Code 3 Standard Setting 20 Standard Setting 35 Standard Setting	3.4-20 10.3 7-140 69 17-240 121	[50-300] [150] [100-2000] [1000] [250-3500] [1750]
Code 0 3B 2G 3G 6H	Ports No Housing 3/8" BSP 1/4" BSP 3/8" BSP #6 SAE	Aluminum Standard Duty 02–175462 – –	Aluminum Heavy Dut 	 Steel Heavy Duty - 02–175102 02–175103 - 	- - - - - -	Code 3 Standard Setting 20 Standard Setting 35 Standard Setting 50	3.4-20 10.3 7-140 69 17-240 121 35-350 172	[50-300] [150] [100-2000] [1000] [250-3500] [1750] [500-5000] [2500]



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Relief Valves RV11-12

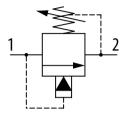
Relief valve, Pilot operated, Spool Type

350 bar [5000 psi] • 190 l/min [50 US gpm]

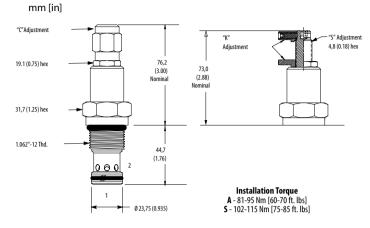
DESCRIPTION AND OPERATION

This is a pilot operated, spool type relief valve that relieves from port 1 to port 2. It can be used to limit pressure in a system while maintaining accurate pressure control with constant or varying flows.

SCHEMATIC



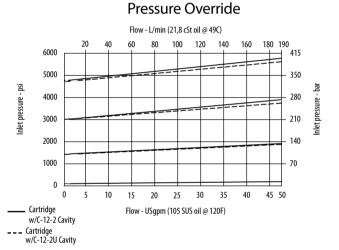
DIMENSIONS



PERFORMANCE CURVES



Rated pressure	350 bar [5000 psi]
Rated flow	190 l/min [50 US gpm]
Leakage	131 ml/min [8 in3/min] @ 350 bar [5000 psi]
Weight	0.3 kg [0.68 lb]
Cavity	C-12-2 / C-12-2U



							Pressur	e Setting		
Seal Op Code	Se	eal Kit		•			within s	pecified Press ndard setting	setting in psi (50 p ure Range) (see Pressure Rang	
		2–165889	Adjustment Opt S - External	lon						
V -Viton	02	2–165888	C - Tamper Resista	ant Housing Ma	terial		Code	Bar	Psi	
			K - Knob	Omit - No Ho			10	69	[1000]	
				A - Aluminun S - Steel	n		10.5	72.4	[1050]	
Housin	g			J Steel			Pressure Range			
Code	Ports	Housing Mod	el Code				Code	Bar	Psi	
		C-12-2	C-12-2U	C-12-2	C-12-2U		15	10.3-103	[150-1500]	
			Aluminum	Steel Heavy Duty	Steel Heavy Duty		Standard Setting	52	[750]	
		Aluminum Heavy Duty	Hoavy Duty				30	17-210	[250-3000]	
0	No Housing	Heavy Duty	Heavy Duty	neavy Duly	incury buty		30	17-210	[230-3000]	
	No Housing	Heavy Duty					Standard Setting	17-210	[1500]	
10T	#10 SAE	Heavy Duty 02-160640	02-160641	02-169744	02-169817					
10T		Heavy Duty					Standard Setting	103	[1500]	
10T 12T	#10 SAE	Heavy Duty 02-160640	02-160641	02-169744	02-169817		Standard Setting 50	103 24-350	[1500] [350-5000]	



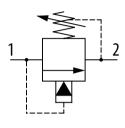
Relief Valves 1AR100

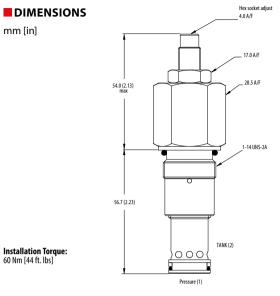
Relief valve, Pilot operated, Spool Type

400 bar [5800 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

This is a pilot operated, spool type relief valve that relieves from port 1 to port 2. It can be used to limit pressure in a system while maintaining accurate pressure control with constant or varying flows.

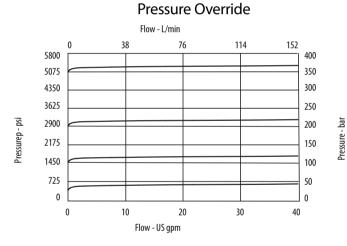




PERFORMANCE CURVES



Rated pressure	400 bar [5800 psi]
Rated flow	150 l/min [40 US gpm]
Leakage	20 to 65 ml/min nominal
Weight	0.14 kg [0.3 lb]
Cavity	A881



Basic	Code											Pressure		
1AR14 1AR15	0/1AR155 - (gh ported	ng and housing Cartridge and h	ousing	Adjustmer P - Externa R - Knob G - Tamper							ng Material Aluminum/No housing iteel	Code-Pres (5 bar incre specified Pr XXX-Stand (see Pressu Example:	ements wit ressure Rar ard setting	hin nge) I
	Ports	Housing Mo	dal Cada				J		Seal Opti	on		Code	Bar	Psi
coue	10103	ilousing mo	uercoue						Code	Sea	Kit	60	60	[870]
		Aluminum	Aluminum	Steel	Aluminum				S -Nitrile	SK16	4			
		1AR145	1AR150	1AR150	1AR155	1AR155			SV-Viton	SK16	4V			
0mit	No Housing								-					
3W	3/8″ BSP		C1084					Pressure	Range					
4W	1/2″ BSP	B4851	C1044	C593			•		de	Bar	Psi			
6W	3/4″ BSP	B3954	C1086	C4917				7 Standard		10-70 35	[145-1015] [510]			
8W	1″ BSP				B1617	B4596		2		10-210	[145-3000]			
6T	3/8″ SAE		B10784					Standard		100	[1450]			
8T	1/2" SAE	B19403	C7140					4 Chan daud		50-400	[725-5800]			
12T	3/4″ SAE	B19404	B10506	B10742				Standard	asetting	280	[4060]			
141	J/H JAL	017404	010500	010/42			* Alumin	um bodies ar	re to be use	d for press	ures less than 210 bar [300)0 psil.		

Danfoss

Relief Valves RV5-16

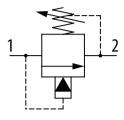
Relief valve, Pilot operated, Spool Type

350 bar [5000 psi] • 300 l/min [80 US gpm]

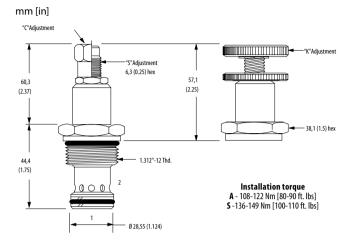
DESCRIPTION AND OPERATION

This is a pilot operated, spool type relief valve that relieves from port 1 to port 2. It can be used to limit pressure in a system while maintaining accurate pressure control with constant or varying flows.

SCHEMATIC



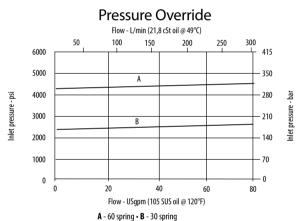
DIMENSIONS



PERFORMANCE CURVES



Rated pressure	350 bar [5000 psi]
Rated flow	300 l/min [80 US gpm]
Leakage	164 ml/min [10 ln³/min] @ 350 bar [5000 psi]
Weight	0.71 kg [1.57 lb]
Cavity	SDC16-2



						Pressure	e Setting		
Code		al Kit	Adjustment Option			specified	Pressure Ra Indard settin	e setting in psi (5 Inge) g (see Pressure Ra	0 psi increments wit ange for value)
V -Vit	on 88	9635	S - External	Housing Material		Code	Bar	Psi	
			C - Tamper Resistant K - Knob	Omit - Aluminum/No housing		10	69	[1000]	
				S - Steel		10.5	72.4	[1050]	
Hous	ing								
Code	Ports	Housing Mode	l Code		_				
		Aluminum Standard Duty	Aluminum Heavy Duty	Steel Heavy Duty					
		Stanuaru Duty							
0	No Housing				_	Pressure Range			
0 6B	No Housing 3/4″ BSP	02–175463			-	Pressure Range Code	Bar	Psi	
		·	- 876716		-		Bar 34-210	Psi [500-3000]	
6B	3/4″ BSP	02–175463		-	-	Code 30 Standard Setting	34-210 103	[500-3000] [1500]	
6B 4G	3/4" BSP 1/2" BSP	02–175463 –	876716	- 02–175106	-	Code 30 Standard Setting 60	34-210 103 69-415	[500-3000] [1500] [1000-6000]	
6B 4G 6G	3/4" BSP 1/2" BSP 3/4" BSP	02–175463 – –	876716 876718	- 02-175106 02-175107	-	Code 30 Standard Setting	34-210 103	[500-3000] [1500]	
6B 4G 6G 10H	3/4" BSP 1/2" BSP 3/4" BSP #10 SAE	02–175463 – – –	876716 876718 876717	- 02-175106 02-175107 -	- - - - -	Code 30 Standard Setting 60	34-210 103 69-415 210	[500-3000] [1500] [1000-6000] [3000]	

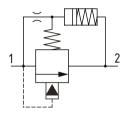
Relief Valves 1ARD100

Shockless Relief Valve, Poppet 210 bar [3000 psi] • 100 l/min [26 US qpm]

DESCRIPTION AND OPERATION

This is a pilot operated relief valve designed to remove pressure spikes in a system by providing dampening on initial opening. System pressure acts on the pilot section of the valve, and when the setting is reached pilot flow passes through the center of the dampening piston and through an orifice to tank. The flow through the orifice causes the dampening piston to compress the main spring to increase the setting. The level of dampening is determined by the distance moved by the dampening piston. The amount of dampening can be adjusted clockwise to reduce the amount of dampening.

SCHEMATIC

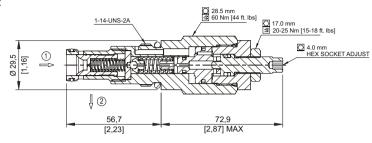


PERFORMANCE DATA

Rated pressure	210 bar [3000 psi]
Rated flow	100 l/min [26 US gpm]
Leakage	100 ml/min nominal
Weight	0.41 kg [0.9 lb]
Cavity	A881

DIMENSIONS

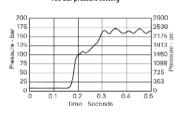
mm [in]



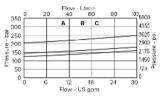
Installation torque 60 Nm [44 ft. lbs]

PERFORMANCE CURVES

Typical Dampening 160 bar pressure setting



Pressure Override



Basic	Code													
	1 00 – No hou										Pressure	Setting		
		ge and housing 5 - Cartridge an	l Id housing throu	ıgh ported							Code -Pres (10 bar inc Pressure Ra Example:	rements wi		fied
Adiust	tment Optio	n									Code	Bar	Psi	_
N - No	n-adjustable					J					60	60	[870]	_
can be	e adjusted.	ie factory to a spi	ecific pressure set	ting. Only the	e level of damp	bening				Housing N	laterial			
Housi	ng]		L	Omit - Alu	minum/No h	ousing		
Code	Ports	Housing Mo	del Code							377 - Stee				
		Aluminum 1ARD145	Aluminum 1ARD150	Steel 1ARD150	Aluminum 1ARD155	Steel 1ARD155			Seal Optio	n				
0mit	No Housing							-	Code	Seal K	it			
3W	3/8″ BSP		C1084						S -Buna-N	SK1412				
2 44	1/2″ BSP	B4851	C1044	C593					SV-Viton	SK1412	V			
-	1/2 001							_	_					
4W	3/4″ BSP	B3954	C1086	C4917										
4W 6W		B3954	C1086	C4917	B1617	B4596		Pressure						
4W 6W 8W	3/4″ BSP	B3954	C1086 B10784	C4917	B1617	B4596		Code	Bar	Ps				
4W 6W 8W 6T	3/4″ BSP 1″ BSP	B3954 B19403		(4917	B1617	B4596		Code 7	Bar 10-7	0 [1	45-1015]			
4W 6W 8W 6T 8T 12T	3/4" BSP 1" BSP 3/8" SAE		B10784	C4917 B10742	B1617	B4596		Code 7 20	Bar	0 [1 10 [1	45-1015] 45-3000]			



Quick Reference

Index

Danfoss

Relief Valves RV2-10

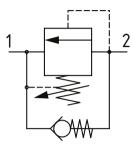
Relief valve, Pilot Operated, Spool Type with Reverse Free Flow

350 bar [5000 psi] • 114 l/min [30 US gpm]

DESCRIPTION AND OPERATION

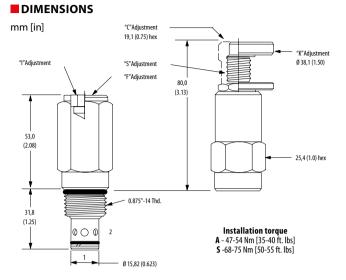
This is a pilot operated, spool type relief valve that relieves from port 1 to port 2 with an integrated reverse flow check valve from port 2 to 1. It can be used to limit pressure in a system or on the work port of a directional valve. It maintains accurate pressure control with constant or varying flows, while also allowing make up flow through in the reverse direction.

SCHEMATIC



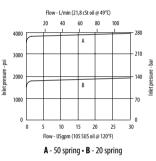
PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	114 I/min [30 US gpm]
Leakage	0.3 ml/min [5 drops/min] @ 85% of Pressure Setting
Weight	0.22 kg [0.48 lb]
Cavity	SDC10-2

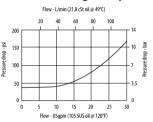


PERFORMANCE CURVES

Pressure Override



Pressure Drop for reverse flow cartrige only



MODEL CODE

c	Option							
Code	•	al Kit				e Setting		
			Adjustment Option				e setting in psi (50 ssure Range)	psi increment
			- Tamper Resistant		XXX-Sta	ndard settin	g (see Pressure Ran	ge for value)
V -Vit	on 566	086 B	- Fixed	Housing Material	Exampl	es:		
			- Internal (- Knob	Omit - Aluminum/No housing	Code	Bar	Psi	
			- External	S - Steel	10	69	[1000]	
Hous	ing				10.5	72.4	[1050]	
Code	Ports	Housing Model	Code		 			
		Aluminum Standard Duty	Aluminum Heavy Duty	Steel Heavy Duty				
0	No Housing							
3B	3/8″ BSP	02-175462	_	-	Pressure Range			
	1/4″ BSP	_	876702	02–175102	Code	Bar	Psi	
2G	3/8″ BSP	_	876703	02–175103	3	3.5-20	[50-300]	
_		_	876700	_	Standard Setting	10.3	[150]	
3G	#6 SAE		876701	_	20 Standard Setting	7-140 69	[100-2000] [1000]	
2G 3G 6H 8H	#6 SAE #8 SAE	-						
3G 6H	#8 SAE		_	02-175100	35	17_240	[250-3500]	
3G 6H 8H		- 566151 -		02–175100 02–175101	35 Standard Setting	17-240 121	[250-3500] [1750]	

BC332375370104en-000202

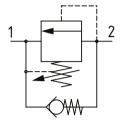
Relief Valves RV10-POP

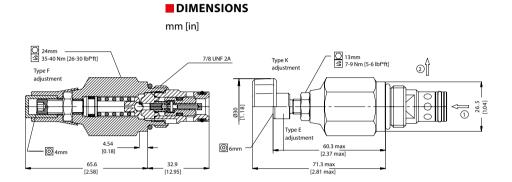
Relief valve, Pilot Operated, Spool Type with Reverse Free Flow

250 bar [3600 psi] • 120 l/min [32 US gpm]

DESCRIPTION AND OPERATION

This is a pilot operated, poppet type relief valve that relieves from port 1 to port 2 with an integrated reverse flow check valve from port 2 to 1. Due to its unique poppet design, this valve offers faster response than a typical pilot operated valve. It can be used to limit pressure in a system or on a service line of a directional valve. It maintains accurate pressure control with constant or varying flows, while also allowing make up flow through in the reverse direction.

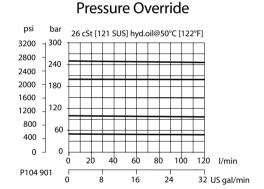




PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	120 l/min [32 US gpm]
Leakage	6 drops/min @ 80% of pressure setting
Weight	0.22 kg [0.49 lb]
Cavity	SDC10-2

PERFORMANCE CURVES



Danfoss

Pressure Range							
Code Bar Psi						Housing	
3 25-250 [360-3600]						Code Ports & Material	Housing Model Code
Standard Setting Not set						Omit No Housing	No Housing
						65 AI, #6 SAE	CP10-2-65
Adjustment Option						85 AI, #8 SAE	CP10-2-85
E- External				1		DG3B AI, 3/8 BSP	DC10-2-DG3B
F - Tamper Resistant K - Knob						DG4B AI, 1/2 BSP	DC10-2-DG4B
						* Aluminum bodies are to b * Additional housings availa	e used for pressures less than 2 able
Pressure Setting Exa	mple:				Seal Optio	on	
Code -Pressure setting in bar (5 bar increments	Code	Bar	Psi		Code	Seal kit	
within specified Pressure Range) —	100	100	[1450]		B -Buna - M	N 354004019	



Relief Valves 1ARC100

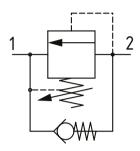
Relief valve, spool free reverse flow

400 bar [5800 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

This is a pilot operated, spool type relief valve that relieves from port 1 to port 2 with an integrated reverse flow check valve from port 2 to 1. It can be used to limit pressure in a system or on a service line of a directional valve. It maintains accurate pressure control with constant or varying flows, while also allowing make up flow through in the reverse direction.

SCHEMATIC



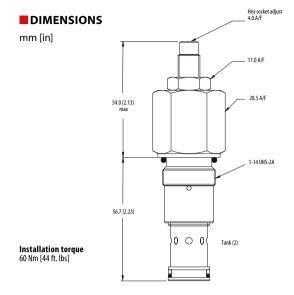
PERFORMANCE DATA

Rated pressure Rated flow

Leakage

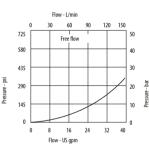
Weight

Cavity

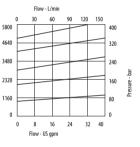


PERFORMANCE CURVES

Pressure Drop



Pressure Override



MODEL CODE

Basic	Code											Pressure	Sattin	
1ARC 1ARC Adjus P - Ex	150/1ARC15 :tment Opti ternal	lge and housing 5 - Cartridge a) nd housing thro	ugh ported						Housing Ma	nterial	Code-Pre (5 bar incr specified F XXX-Stand	ssure set rements Pressure dard sett	ting in bar within Range)
R - Kr G - Ta	iob mper resista	nt								377 - Steel	iniuni/ No nousing	Code	Bar	Psi
	,											60	60	[870]
Hous	-								Seal Op	tion				
Code	Ports	Housing Mo	del Code				-	L	Code	Seal	Kit			
		Aluminum 1AR145	Aluminum 1AR150	Steel 1AR150	Aluminum 1AR155	Steel 1AR155			S -Nitrile	SK164	ļ			
					IANIJJ	IAN ISS	-		SV-Vitor	SK164	V			
0mit	No Housing						-	Pressure	Range					
3W	3/8″ BSP		C1084					Co	de	Bar	Psi			
4W	1/2″ BSP	B4851	C1044	C593			_		7	10-70	[145-1015]			
6W	3/4″ BSP	B3954	C1086	C4917				Standar	d Setting 0	35 10-210	[510] [145-3000]			
8W	1″ BSP				B1617	B4596	-	∠ Standar	•	10-210	[145-5000]			
6T	3/8″ SAE		B10784				-		0	50-400	[725-5800]			
8T	1/2″ SAE	B19403	C7140				-	Standar	d Setting	280	[4060]			
12T	3/4″ SAE	B19404	B10506	B10742			-	Pressure se	etting made	e at 14 l/min				
	-,						- * A I.	minum hadi	ioc aro to by		sures less than 210 b	ar [2000 pc]		

400 bar [5800 psi]

0.14 kg [0.3 lb]

A881

150 l/min [40 US gpm]

125 ml/min @ 280 bar [4060 psi]



Relief Valves 1VR100

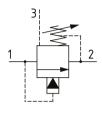
Relief Valve, Pilot Operated, Spool Type, Ventable

350 bar [5000 psi] • 100 l/min [26 US gpm]

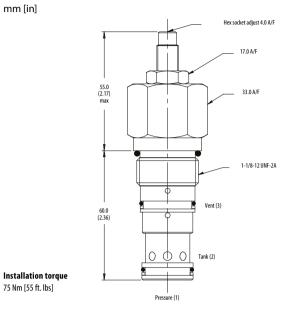
DESCRIPTION AND OPERATION

This is a pilot operated, spool type relief valve that relieves from port 1 to port 2 with a vent port 3. Using pilot control valves on the vent line, it can be used as a dump valve, in two pressure systems or as the main section of a proportional control valve while maintaining a maximum relief pressure.

SCHEMATIC



DIMENSIONS



PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	100 l/min [26 US gpm]
Leakage	35 ml/min @ 280 bar [4060 psi]
Weight	0.46 kg [1.0 lb]
Cavity	

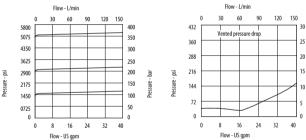
PERFORMANCE CURVES

Pressure Override



bar

ssure



MODEL CODE

Basic Code										
1VR100 - No housing								Pressure S	etting	
1VR150 - Cartridge and Adjustment Option P - External C - Tampagassistant	l housing					Housing N Omit - Alu	laterial minum/No housing	Code - Pres (5 bar incren pecified Pres XXX-Standa (see Pressur Example:	nents withi sure Range ard setting	n 2)
G - Tamper resistant						377 - Steel		Code	Bar	Psi
					Seal Optio	on		60	60	[870]
					Code	Seal Kit				
Housing					S-Nitrile	SK275				
Code Ports	Housing Mode	l Code			SV-Viton	SK275V				
	Aluminum	Steel		Pros	sure Range					
				Thes.	Code	Bar	Psi			
Omit No Housing		D 4370			20		[145-3000]			
OmitNo Housing6W3/4" BSP	B4377	B4378								

Pressure -



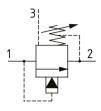
Relief Valves 1VR200

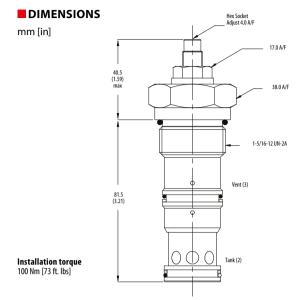
Relief Valve, Pilot Operated, Spool Type, Ventable

350 bar [5000 psi] • 200 l/min [52 US gpm]

DESCRIPTION AND OPERATION

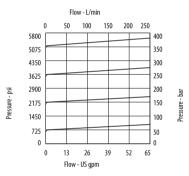
This is a pilot operated, spool type relief valve that relieves from port 1 to port 2 with a vent port 3. Using pilot control valves on the vent line, it can be used as a dump valve, in two pressure systems or as the main section of a proportional control valve while maintaining a maximum relief pressure.



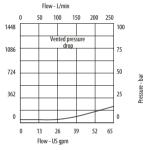


PERFORMANCE CURVES

Pressure Override



Pressure Drop



psi

ressure

PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	200 l/min [52 US gpm]
Leakage	35 ml/min @ 280 bar [4060 psi]
Weight	0.74 kg [1.6 lb]
Cavity	A16102

IVR200 - No Housing IVR250 - Cartridge and housing Pressure Setting Adjustment Option Gode-Pressure Setting in bar (S bar increments within specified Pressure Range) P - External G - Tamper resistant Omit - Aluminum/No housing 377 - Steel Code -Pressure Setting in bar (S bar increments within specified Pressure Range) Housing Seal Option XXX-Standard setting (see Pressu Range for value) Example: Code Ports Housing Model Code SV-Viton SV-Viton SK173 SV-Viton SV-Viton SK173V Pressure Range * Aluminum Steel Pressure Range Code Multi 1" BSP B3496 B3497 16T 1" SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. * Additional housing available Standard Setting	1VR250 - Cartridge and F Adjustment Option P - External	housing					Ususing		Code-Press	ure setting	ı in bar
Adjustment Option Housing Material (5 bar increments within specified Pressure Range) Y - External Omit - Aluminum/No housing 377 - Steel Seal Option Housing Seal Option Seal Option Range for value) Example: Code Ports Housing Model Code S-Nitrile SK173 Muminum Steel SV-Viton SK173V Omit No Housing W 1° BSP B3496 B3497 16f 1° SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 ps]]. Code Bar Psi 20 10-210 [145-3000] Standard Setting 100	Adjustment Option P - External	housing					Usuaina				i in bar
Adjustment Option Pressure Range) Pressure Range) XXX-Standard setting (see Pressu Range) P - External G - Tamper resistant 377 - Steel XXX-Standard setting (see Pressu Range) XXX-Standard setting (see Pressu Range) Housing Seal Option Seal Option Range) XXX-Standard setting (see Pressu Range) Code Ports Housing Model Code S-Nitrile SK173 SV-Viton SK173 Omit No Housing SV-Viton SK173V Pressure Range 75 [1190] W 1" BSP B3496 B3497 Steel Pressure Range Pressure Range ** Aluminum bodies are to be used for pressures less than 210 bar [3000 ps]. Standard Setting 100 [1450]	P - External						I a sea in a l		(5 har increi	ments witl	
P - External G - Tamper resistant Omit - Aluminum/No housing 377 - Steel XXX-Standard setting (see Pressu Range for value) Example: Housing Seal Option Example: Code Ports Housing Model Code Seel Aluminum Steel Omit No Housing SV-Viton SK173 8W 1° BSP B3496 B3497 16T 1° SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Code Bar Psi 20 10-210 [1450]	P - External						Housing	Material	Pressure Ra	nge)	
G - Tamper resistant Safe - Steel Safe - Steel Safe - Steel Housing Seal Option Seal Option Code Ports Housing Model Code Seal Aluminum Steel Omit No Housing 8W 1" BSP B3496 B3497 16T 1" SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Code Bar Psi 20 10-210 [1450]											(see Pressur
Seal Option Code Bar Psi Code Ports Housing Model Code S-Nitrile SK173 75 75 [1190] Muminum Steel SV-Viton SK173 SV-Viton SK173V V Muminum Steel SV-Viton SK173V V							377 - Stee	1		aiue)	
Housing Code Seal Kit 75 75 [1190] Code Ports Housing Model Code S-Nitrile SK173 SV-Viton SK173 SV-Viton SK173 SV-Viton SK173V Pressure Range T T T SV-Viton SK173V SV-Viton						Seal Optio	on			Rar	Dei
Solution Steel Omit No Housing Steel 8W 1" BSP B3496 B3497 16T 1" SAE B6807 B11555 Code Bar Psi 20 10-210 [145-3000] Standard Setting 100 [1450]	Housing					Code	Seal Kit				
Aluminum Steel Omit No Housing SV-Viton SK173V 8W 1" BSP B3496 B3497 16T 1" SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Code Bar Psi 20 10-210 [145-3000] Standard Setting 100 [1450]		Houring Mode	l Codo			S-Nitrile	SK173		/3	75	[1190]
Omit No Housing 8W 1" BSP B3496 B3497 16T 1" SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Code Bar Psi 20 10-210 [145-3000] Standard Setting 100 [1450]						SV-Viton	SK173V				
BW 1" BSP B3496 B3497 16T 1" SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Code Bar Psi 20 10-210 [145-3000] Standard Setting 100 [1450]		Aluminum	Steel								
Code Bar Psi 10° 1.º SAE B6807 B11555 20 10-210 [145-3000] * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Standard Setting 100 [1450]	Omit No Housing										
Idf If SAE B6807 B11555 * Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. Code Bar Psi 20 10-210 [145-3000] Standard Setting 100 [1450]	8W 1" BSP	B3496	B3497		Pressu	ire Range					
* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi]. 20 10-210 [145-3000] Standard Setting 100 [1450]	16T 1" SAE	B6807	B11555				Bar	Psi			
Standard Setting 100 [1950]											
	* Aluminum bodies are to b	be used for pressures l	ess than 210 bar [3000 p	si].	Stan	dard Setting	100	[1450]			

Danfoss

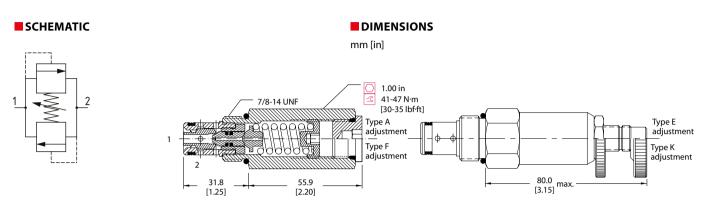
Relief Valves CP200-7

Relief Valve, Differential Area, Poppet Type, Bi-directional

250 bar [3600 psi] • 40 l/min [11 US gpm]

DESCRIPTION AND OPERATION

This is a bi-directional relief valve that relieves from port 1 to 2 and from port 2 to 1. It is ideal as a cross port relief valve protection for motor applications.

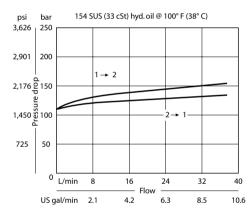


PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	40 l/min [11 US gpm]
Leakage	5 ml/min [0.3 ln ³ /min] @ 80% of pressure setting
Weight	0.20 kg [0.43 lb]
Cavity	SDC10-2

PERFORMANCE CURVES

Pressure Override



Seal Op	tion						
Code	Seal kit			_			
B -Buna-	N 120073				Pressur		•
V -Viton	120074						re setting in psi within specified Pressure Range)
Housing]				XXX-Star Example:	ndard sett	ing (see Pressure Range for value)
Code	Ports & Material	Housing Model Code			Code	Bar	Psi
D	No Housing	No Housing			150	103	[1500]
DG3B	AL, 3/8 BSP	SDC10-2-DG-3B	•				
DG4B	AL, 1/2 BSP	SDC10-2-DG-4B					
6S	AL, #6 SAE	CP10-2-65					
8S	AL, #8 SAE	CP10-2-85			Pressure Range		
		for pressures less than 210 bar [3000 psi].		Code	Bar	Psi
	nal housings available				A Standard Setting	7-41 28	[100-600] [400]
Adjustm	ent Option				B	17-97	

DIMENSIONS

Relief Valves 1CLLR100

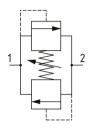
Relief Valve, Differential Area, Poppet Type, Bi-directional

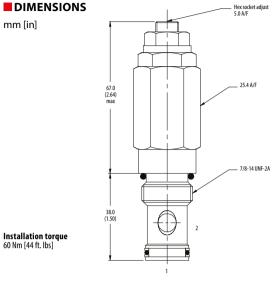
350 bar [5000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

This is a bi-directional relief valve that relieves from port 1 to 2 and from port 2 to 1. It is ideal as a cross port relief valve protection for motor applications.

SCHEMATIC

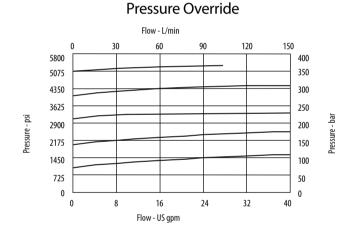




PERFORMANCE DATA

Rated pressure	350 bar [5000 psi]
Rated flow	150 l/min [40 US gpm]
Leakage	5 ml/min nominal
Weight	0.23 kg [0.5 lb]
Cavity	

PERFORMANCE CURVES



								Pressure	Setting	
Basic code 1CLLR100 - No Ho 1CLLR150 - Cartri 1CLLR155 - Cartri Adjustment Opti		Housing M Omit - Alur 377 - Steel	<mark>aterial</mark> minum/No housing	·						
F - External								Code	Bar	Psi
Housing					Seal Opt			210	210	[3000]
Code Ports	Housing Mo	del Code			Code	Seal Kit				
		6		6 1	S-Nitrile	SK614				
	Aluminum 1CLLR150	Steel 1CLLR150	Aluminum 1CLLR155	Steel 1CLLR155	SV-Viton	SK614V				
Omit No Housing					Pressure Range					
6W 3/4" BSP	B1067	B5614	B2216	B7147	Code	Bar	Psi			
8W 1" BSP	B1069	B542			20 Standard Setting	50-210 140	725-3000 [2030]			
12T 3/4" SAE	B4409		B10623		35	114-350	[1650-5000]			
16T 1" SAE	B10827	B11801			Standard Setting	280	[4060]			





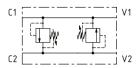
Relief Valves CP220-1

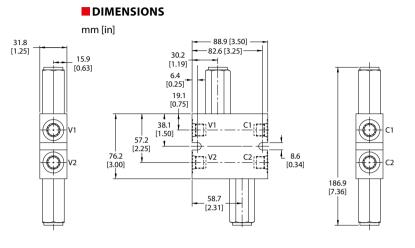
Cross-Over Relief Valve, Line Mounted 250 bar [3600 psi] • 76 l/min [20 US gpm]

DESCRIPTION AND OPERATION

This valve is an inline cross relief. It uses two CP200-1 differential area relief valves.

SCHEMATIC



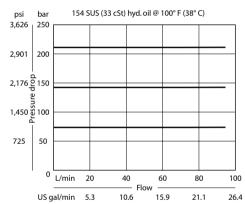


PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	76 l/min [20 US gpm]
Weight	0.82 kg [1.80 lb]

PERFORMANCE CURVES

Pressure Override



MODEL CODE

Housing]								
Code	Ports & Material	Housing Model Code							
3B	AL, 3/8 BSP	221743				Pressure			
4B	AL, 1/2 BSP	221744	_					etting in psi hin specified Pr	ressure Range)
6S	AL, #6 SAE	220216	_		X			(see Pressure R	
						Litampie.			
	AL, #8 SAE um bodies are to be used nal housings available	220217 I for pressures less than 210 bar	ar [3000 psi].		-	Code 150	Bar 103	Psi [1500]	
* Alumin	um bodies are to be used nal housings available		ar [3000 psi].		-				
* Alumin * Additic	um bodies are to be used nal housings available		 ar [3000 psi].		-				
* Alumin * Additio Seal Opt Code	um bodies are to be used inal housings available tion Seal kit		 ar [3000 psi].		- - Pressure R	150			
* Alumin * Additio Seal Opt Code B-Buna-	um bodies are to be usec inal housings available tion Seal kit N 120072		ar [3000 psi].		-	150 Range	103 Bar	[1500] Psi	
* Alumin * Additio Seal Opt	um bodies are to be usec inal housings available tion Seal kit N 120072		ar [3000 psi].		- - - Pressure R Cod A	150 Range de	103 Bar 7-55	[1500] Psi [100-800]	_
* Alumin * Additio Seal Opt Code B-Buna- V-Viton	um bodies are to be usec inal housings available tion Seal kit N 120072		ar [3000 psi].		Pressure R	150 Range de Setting	103 Bar	[1500] Psi	

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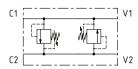
Relief Valves CP221-1

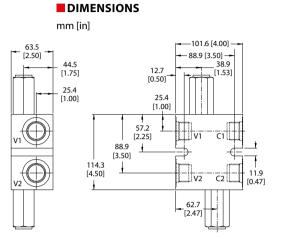
Cross-Over Relief Valve, Line Mounted 250 bar [3600 psi] • 150 l/min [40 US gpm]

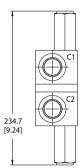
DESCRIPTION AND OPERATION

This valve is an inline cross relief. It uses two CP201-1 differential area relief valves.

SCHEMATIC





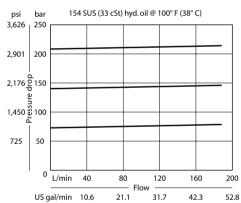


PERFORMANCE DATA

Rated pressure	250 bar [3600 psi]
Rated flow	150 l/min [40 US gpm]
Weight	2.25 kg [4.95 lb]

PERFORMANCE CURVES

Pressure Override



Housing						Pressure	Setting		
Code	Ports & Material	Housing Model Code				Code x10	- Pressure se	tting in psi	
6B	AL, 3/4 BSP	221742	-			(SU psi inc XXX-Stand	lard setting (in specified Pres see Pressure Rar	ssure Kange) nge for value)
8B	AL, 1 BSP	221690	-			Example:	J.		J ,
125	AL, #12 SAE	220223	-			Code	Bar	Psi	
165	AL, #16 SAE	220222	-			150	103	[1500]	
Seal Opt						<u>Code</u> A	Bar 7-69	Psi [100-1000]	
Code	Seal kit					Α			
						Standard Setting B	28 17-172	[400] [250-2500]	
	120017					Standard Setting	69	[1000]	
						C	41-250	[500-3600]	
	120010								
B -Buna-1 V -Viton						Standard Setting	103	[1500]	
V -Viton	ent Option					Standard Setting	103	[1500]	

Danfoss