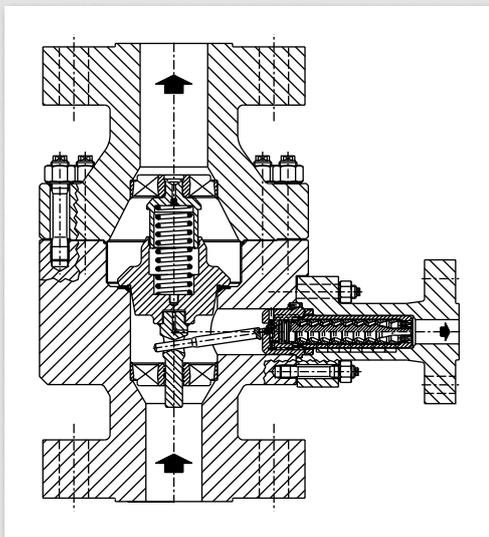# SCHROEDAHL
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Series TD
Type TDC

Automatic minimum flow recirculation for pump protection of descaling application

Application

Automatic Recirculation Valves protect centrifugal pumps against overheating, excessive noise, instability and cavitation during low flow conditions.

Operation

The main flow positions the check valve at a certain point. The stem of the check valve transmits the motion via a lever to the bypass. The bypass system controls the bypass flow in a modulating way and reduces the pressure to bypass outlet level. The full minimum flow is bypassed when the check valve is seated. The bypass is fully closed when the check valve is in its upper position, thereby allowing full pump flow to the system.

Valve sizes

Standard size from DN 80 (3") up to DN 250 (10")

Pressure rating

Pressure rating ranges from PN 100 up to PN 400 (600 lbs to 2500 lbs). Other ratings upon request.

Connections

Flanges are as a standard according DIN or ANSI. Flanges according to other standards (ISO,BS, JIS, NF) are available upon request.

The inlet and outlet connections can also be supplied with welding ends.

The bypass connection is always flanged (for inspection purposes).

Materials

Standard housing materials:
W.-Nr. 1.0460 (C22.8) (ASTM A 105)

The internals of the TDC valves are as a standard out of stainless steel with a minimum chrome content of 13 %. The controll bushing, the seat bushing and the vortex plug are specially designed (chromalised or nitrogen treated) against wear.

Other forged materials for housing and internals available upon request.

Selection of the housing materials is done according to pressure and temperature conditions.

Size code		Pressure class code	Connection code	Configuration code
DN 80	3" = 10	PN 100 (600 lbs) = 6	F = Flanges acc. DIN	V = Vertical installation
DN 100	4" = 11	PN 160 (900 lbs) = 5	U = Flanges acc. ANSI	H = Horizontal installation
DN 125	5" = 12	PN 250 (1500 lbs) = 6	S = Welding ends	W = Oversized bypass
DN 150	6" = 13	PN 320 = 7		
DN 200	8" = 15	PN 400 (2500 lbs) = 8		CS = Carbon Steel
DN 250	10" = 16			(W.-Nr. 1.0460),
				ASTM A105

Example:

TDC 137FV-CS: Valve type TDC; DN150, PN160, DIN flanges, vertical installation,
housing material carbon steel

Installation

The Automatic Recirculation Valve shoud be installed as close as possible to the centrifugal pump, preferably directly on the outlet of the pump.

To prevent low frequency shocks caused by pulsation of the medium, the distance between pump outlet and valve inlet should not exceed 1.5m.

Vertical installation is preferred, but horizontal installation is also possible. The TDC valves operate at a low noise level and ensure a high reliability due to their sturdy design.
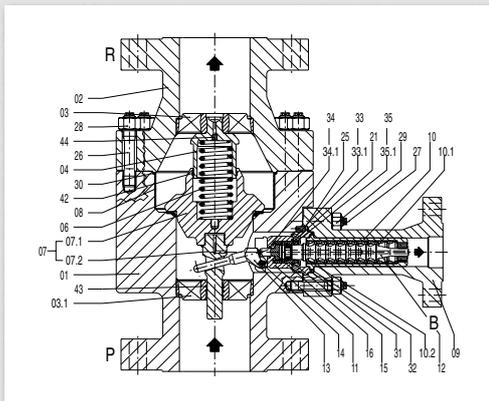
Maintenance

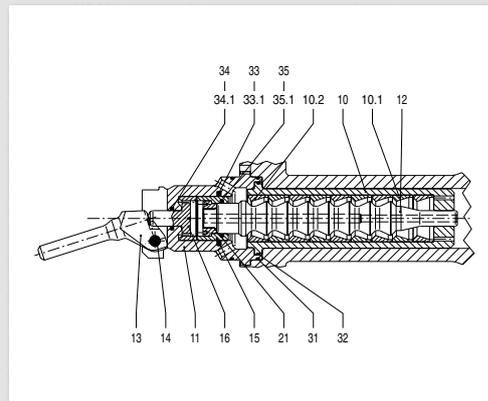Maintenance and installation instructions are available upon request.

Correct operation of the valve is to be checked with the usual operational test of the pump.

Parts list

Housing

Bypass

Housing assembly	
Pos.	Description
01	Lower Body
02	Upper Body
03	Stemguide
03.1	Sternguide
04	Guide Bolt
06	Spring
07	Check Valve cpl.
07.1	Check Valve
07.2	Stem
08	Liner
09	Bypass Branch
25	Guide Pin
26	Bolt
27	Bolt
28	Hexagon Nut
29	Hexagon Nut
30	O-Ring
42	Guide Ring
43	Guide Ring
44	Ball

Bypass complete	
Pos.	Description
10	Bushing
10.1	Control Bushing
10.2	Seat Bushing
11	Control Head
12	Vortex Plug
13	Lever
14	Pivot Pin
15	Relief Bushing
16	Relief Piston
21	Threated Ring
31	O-Ring
32	O-Ring
33	O-Ring
33.1	Glyd-Ring
34	O-Ring
34.1	Glyd-Ring
35	O-Ring
35.1	Glyd-Ring

Dimensions
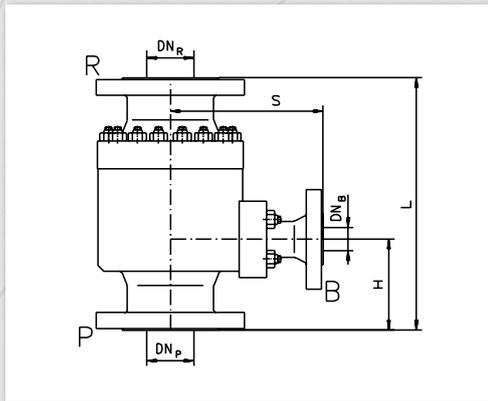
P = Pump outlet
R = Pipeline/ process
B = Bypass connection

Dimensions DIN

Size	DN$_R$/DN$_P$	PN (bar)	DN$_B$ Std.	DN$_B$ max.	L/mm	S/mm	H/mm
107	80	160	25	40			
108	80	250	25	40			
109	80	320	25	40			
100	80	400	25	40			
117	100	160	40	50			
118	100	250	40	50			
119	100	320	40	50			
110	100	400	40	50			
127	125	160	40	65	500	380	175
128	125	250	40	65	600	390	215
129	125	320	40	65	650	410	230
120	125	400	40	65	730	450	265
137	150	160	50	80	585	460	200
138	150	250	50	80	700	475	250
139	150	320	50	80	775	490	270
130	150	400	50	80	840	570	315
157	200	160	65	80			
158	200	250	65	80			
159	200	320	65	80			
150	200	400	65	80			
167	250	160	80	100			
168	250	250	80	100			
169	250	320	80	100			
160	250	400	80	100			

Dimensions

Dimensions ANSI

Size	DN$_R$/DN$_P$	PN (lbs)	DN$_B$ Std.	DN$_B$ max.	L/mm	S/mm	H/mm
107	3"	160	25	40			
108	3"	250	25	40			
100	3"						
117	4"	160	40	50			
118	4"	250	40	50			
110	4"	400	40	50			
127	5"	160	40	65	500	380	175
128	5"	250	40	65	600	390	215
120	5"	400	40	65	730	450	265
137	6"	160	50	80	585	460	200
138	6"	250	50	80	700	475	250
130	6"	400	50	80	840	570	315
157		160	65	80			
158		250	65	80			
150		400	65	80			
167		160	80	100			
168		250	80	100			
160		400	80	100			

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Automatic Recirculation Valve Technical Data

Customer:	Datasheet:
Enquiry no.:	
Prior reference:	Quantity:
Order no.:	
Project:	

Automatic Recirculation Valve type:

Valve inlet [in.]	DN		PN		Acc.:
Valve outlet [in.]	DN		PN		Installation: ☐ vertical ☐ horizontal
Bypass outlet [in.]	DN		PN		Paint:
Start-up [in.]	DN		PN		Start-up ☐ above ☐ below checkvalve

Mat.-/test certificates:

Materials

Housing:	Internals:	Seals:

Medium		Operating temp. [°C]:	
S.G. [t/m³]:		Design temp. [°C]:	

H_0 = ____ m

Q_M =	____	m³/h	H_M =	____	m	Suction pr. pv	____ bar
Q_{100} =	____	m³/h	H_{100} =	____	m	Differential pr. $(p_1 - p_n)$	____ bar
Q_{max} =	____	m³/h	H_{Qmax} =	____	m	Backpress p_N	____ bar
Q_A =	____	m³/h	H_A =	____	m	Backpress p_A	____ bar

Notes:

Revision	Date	Description	Name	Signature
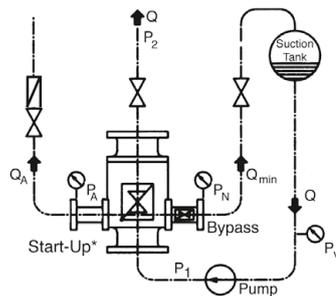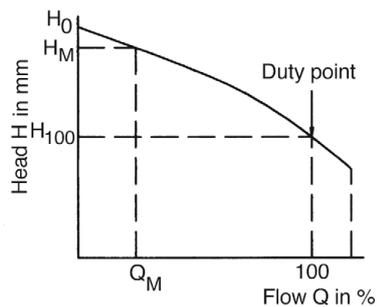
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