

## Data Sheet

# Hand operated regulating valve Type **REG-SA** and **REG-SB 10-65**

Assures favorable flow characteristics and accurate linear characteristics



REG-SA and REG-SB are angleway and straightway hand operated regulating valves, which act as normal shut-off valves in closed position.

The valves are available in two different versions – REG-SA and REG-SB designed for regulation purposes in liquid and expansion lines.

The valves are designed to meet the strict quality requirements on refrigerating installations specified by the international classification societies and are carefully designed to present favourable flow conditions and accurate linear characteristics.

REG-SA and REG-SB are equipped with vented cap and internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure.

## Features

- Modular Concept:
  - Each valve housing is available with several different connection types and sizes.
  - Possible to convert REG-SA or REG-SB to any other product in the Flexline™ SVL family (shut-off valve, check & stop valve, check valve or strainer) just by replacing the complete top part.
- Fast and easy valve overhaul service. It is easy to replace the top part and no welding is needed.
- Designed to ensure perfect regulation
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure.
- Easy to disassemble for inspection and possible repair.
- Long neck versions (DN 15 to DN 40) for insulated systems available from parts programme.
- Max. operating pressure: 52 bar (754 psig)
- Temperature range: -60 °C to +150 °C (-76 °F to +302 °F)
- Acts as a normal shut-off valve in closed position.
- Housing and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities.
- Exact capacity and setting of the valve can be calculated for all refrigerants by means of Coolselector®2 (Danfoss calculation and selection software).
- Classification: DNV, CRN, BV, EAC etc. To get an updated list of certification on the products please contact your local Danfoss Sales Company.
- Replacement kits with O-rings for R717 Heat Pump and R1270 Propylene include separate ID-ring for ID of application.

## Media

### **Refrigerants**

Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO<sub>2</sub>), R290 (Propane), R600 (Butane), R600a (Iso-Butane), R170 (Ethane) and R1270 (Propylene).

R717 Heat Pump and R1270 Propylene applications with replaced O-ring from replacement kit for DN 10-40.

### **New refrigerants**

Danfoss products are continually evaluated for use with new refrigerants depending on market requirements.

When a refrigerant is approved for use by Danfoss, it is added to the relevant portfolio, and the R number of the refrigerant (e.g. R513A) will be added to the technical data of the code number. Therefore, products for specific refrigerants are best checked at [store.danfoss.com/en/](https://store.danfoss.com/en/), or by contacting your local Danfoss representative.

## Product specification

### Design

#### Housing

Housing is Standard SVA angleway or straightway housing allowing other inserts from the SVL platform to be installed.

Material is special, cold resistant steel

#### The cone

The valves are available in two different versions – REG-SA with an A cone and REG-SB with a B cone. The A cone is designed for expansion lines, while the B cone is designed for regulating purposes e.g. liquid lines.

The valve cone is designed to ensure perfect regulation and provide an extensive regulating area. Irrespective of the refrigerant used, it is easy to obtain the correct capacity. A cone seal ring provides perfect sealing at a minimum closing momentum.

The valve cone can be turned on the spindle, thus there will be no friction between the cone and the seat when the valve is opened and closed.

#### Spindle

The spindle is made of polished stainless steel, which is ideal for O-ring sealing.

#### Packing gland - REG-SA and REG-SB

The "full temperature range" packing gland ensures perfect tightness in the whole range: -60 °C/+150 °C (-76 °F / +302 °F). The packing glands are equipped with a scraper ring to prevent penetration of dirt and ice.

For special and/or high demanding applications/conditions which run with high constant temperatures, it is recommended to replace the packing gland with "HL Packing Gland" as spare part. For more information, please, contact your local Danfoss sales representative.

#### Installation

Install the valve with the spindle up or in horizontal position. The flow must be directed towards the cone.

The valve is designed to withstand high internal pressure. However, the piping system in general should be designed to avoid liquid traps and reduce the risk of hydraulic pressure caused by thermal expansion.

For further information refer to product instruction for REG-SA and REG-SB.

Figure 1: Example of marking ring, REG-SA

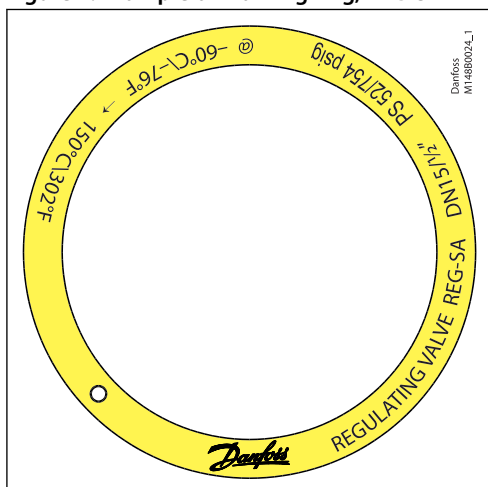


Figure 2: ID tag R1270



Figure 3: ID tag R717



#### ID ring for special application

After converting a REG-SA/SB (DN 10-40) valve for Heat Pump/Propylene applications (replacing O-ring) the color marked ID tag included in the replacement kit must be fixed to the valve as shown in figure to the right.

## Hand operated regulating valve, type REG-SA and REG-SB 10-65

The ID tag indicates the special application and identifies the installed O-ring.

### Pressure and temperature data

**Table 1: Temperature and pressure**

Description	Values
Temperature range	-60 °C / +150 °C (-76 °F / +302 °F)
Max working pressure	52 bar (754 psi g)

**NOTE:**

With O-ring replaced for valves up to DN40:

- Heat pump configuration: R717 - 52 bar (754 psi) @ +100 °C to +150 °C (+212 °F to +302 °F) continuous
- Propylene configuration: R1270 - 52 bar (754 psi) @ -60 °C to 150 °C (-76 °F to 302 °F)

### Flow coefficients

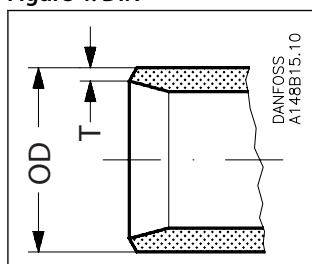
Flow coefficients for fully opened valves from  $k_v = 0.15$  to  $80 \text{ m}^3/\text{h}$  ( $C_v = 0.17$  to  $92.5 \text{ USgal/ min}$ ).

### Connections

Available with the following connections:

- Butt-weld DIN (EN 10220) – DN 10 - 65 ( $\frac{3}{8}$  -  $2\frac{1}{2}$  in.)
- Butt-weld ANSI (B 36.10 Schedule 80) – DN 10 - 40 ( $\frac{3}{8}$  -  $1\frac{1}{2}$  in.)
- Butt-weld ANSI (B 36.10 Schedule 40) – DN 50 - 65 (2 -  $2\frac{1}{2}$  in.)
- Butt-weld GOST, (8734-75 and 8732-78) – DN 10 - 65 ( $\frac{3}{8}$  -  $2\frac{1}{2}$  in.)
- Socket weld (ANSI B 16.11) – DN 15 - 40 ( $\frac{1}{2}$  -  $1\frac{1}{2}$  in.)
- FPT inside pipe thread, NPT (ANSI/ASME B 1.20.1) – DN 15 - 32 ( $\frac{1}{2}$  -  $1\frac{1}{4}$  in.)

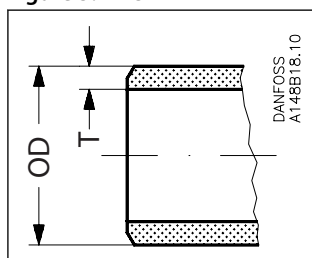
**Figure 4: DIN**



**Table 2: Butt-weld DIN (EN 10220)**

	Size mm	Size in.	OD mm	T mm	OD in.	T in.	Cone
REG-SA / SB	10	$\frac{3}{8}$	17.2	2.3	0.677	0.091	A and B
REG-SA / SB	15	$\frac{1}{2}$	21.3	2.3	0.839	0.091	A and B
	20	$\frac{3}{4}$	26.9	2.3	1.059	0.091	
REG-SA / SB	25	1	33.7	2.6	1.327	0.103	A and B
	32	$1\frac{1}{4}$	42.4	2.6	1.669	0.102	
	40	$1\frac{1}{2}$	48.3	2.6	1.902	0.103	
REG-SB	50	2	60.3	2.9	2.37	0.11	B
REG-SB	65	$2\frac{1}{2}$	76.1	2.9	3	0.11	B

**Figure 5: ANSI**



## Hand operated regulating valve, type REG-SA and REG-SB 10-65

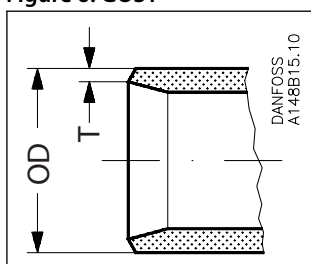
**Table 3: Butt-weld ANSI (B 36.10 Schedule 80)**

	Size mm	Size in.	OD mm	T mm	OD in.	T in.	Cone
REG-SA / SB	10	3/8	17.2	3.2	0.677	0.126	A and B
REG-SA / SB	15	1/2	21.3	3.7	0.839	0.146	A and B
	20	3/4	26.9	4.0	1.059	0.158	
REG-SA / SB	25	1	33.7	4.6	1.327	0.181	A and B
	32	1 1/4	42.4	4.9	1.669	0.193	
	40	1 1/2	48.3	5.1	1.902	0.201	

**Table 4: Butt-weld ANSI (B 36.10 Schedule 40)**

	Size mm	Size in.	OD mm	T mm	OD in.	T in.	Cone
REG-SB	50	2	60.3	3.9	2.37	0.15	B
REG-SB	65	2 1/2	73.0	5.2	2.87	0.20	B

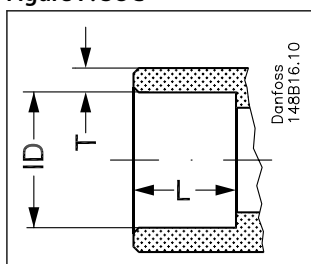
**Figure 6: GOST**



**Table 5: Butt-weld GOST (8734-75 and 8732-78)**

	Size mm	Size in.	OD mm	T mm	OD in.	T in.	Cone
REG-SA / SB	10	3/8	14	2	0.551	0.079	A and B
REG-SA / SB	15	1/2	18	2	0.709	0.079	A and B
	20	3/4	25	2.5	0.984	0.098	
REG-SA / SB	25	1	32	3	1.260	0.118	A and B
	32	1 1/4	38	3	1.496	0.118	
	40	1 1/2	45	3	1.772	0.118	
REG-SB	50	2	57	3.5	2.244	0.138	B
REG-SB	65	2 1/2	76.1	2.9	3	0.11	B

**Figure 7: SOC**



**Table 6: Socket welding ANSI (B 16.11)**

	Size mm	Size in.	OD mm	T mm	OD in.	T in.	L mm	L in.	Cone
REG-SA / SB	15	1/2	21.8	6.0	0.858	0.235	10	0.39	A and B
	20	3/4	27.2	7.6	1.071	0.299	13	0.51	
REG-SA / SB	25	1	33.9	7.2	1.335	0.284	13	0.51	A and B
	32	1 1/4	42.7	6.1	1.743	0.240	13	0.51	
	40	1 1/2	48.8	6.6	1.921	0.260	13	0.51	
REG-SB	50	2	61.2	6.2	2.41	0.24	16	0.63	B

Figure 8: FPT

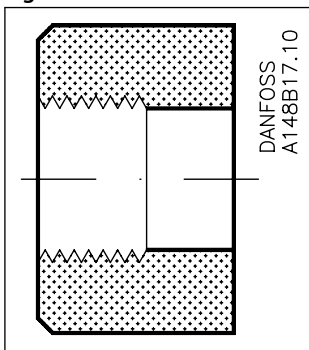


Table 7: FPT inside pipe thread, NPT (ANSI/ASME B 1.20.1)

	Size mm	Size in.	Inside pipe thread	Cone
REG-SA / SB	15	½	(½ × 14 NPT)	A and B
	20	¾	(¾ × 14 NPT)	
REG-SA / SB	25	1	(1 × 11.5 NPT)	A and B
	32	1¼	(1¼ × 11.5 NPT)	

## Computation and selection

### Introduction

In refrigeration plants, hand operated regulating valves are primarily used in liquid lines in order to regulate the flow of refrigerant. The valves can, however, also be used as expansion valves. From a calculation point of view the two fields of application are very different.

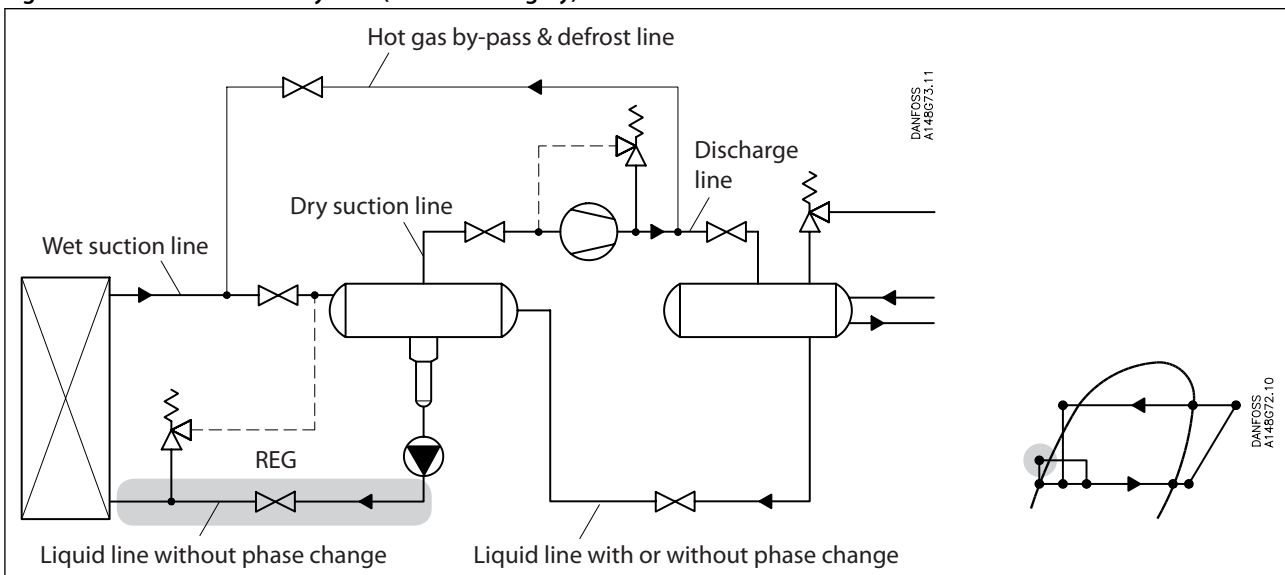
Normal flow is the term used to describe the general case where the flow through the valve is proportional to the square root of the pressure drop across it and inversely proportional to the density of the refrigerant (Bernouilli's equation).

This relationship between mass flow, pressure drop and density satisfies the majority of all valve applications with refrigerants and brines.

Normal flow is characterised by turbulent flow through the valve without any phase change. The following capacity curves are based on the above mentioned assumption.

Application of the hand operated regulating valves outside the normal flow area will reduce the capacity of the valve considerably. In such cases it is recommended to use Coolselector®2 (Danfoss calculation and selection software).

Figure 9: Location of valve in system (marked with grey)



Sizing hand operated regulating valve for liquid flow

Liquid refrigerants: Use the liquid tables, [Figure 15](#), [Figure 16](#), [Figure 17](#), [Figure 18](#), [Figure 19](#). For other refrigerants and brines, "Normal flow" (Turbulent flow); see below and use the flow coefficient tables ([Figure 10](#), [Figure 11](#), [Figure 12](#), [Figure 13](#), [Figure 14](#)).

**SI-units**

Mass flow:

$$k_v = \frac{G}{\sqrt{\rho \times 1000 \times \Delta p}} = G \times C_A \text{ [m}^3\text{/h]}$$

Volume flow:

$$k_v = \frac{V}{\sqrt{\frac{1000 \times \Delta p}{\rho}}} \text{ [m}^3\text{/h]}$$

$k_v$	[m <sup>3</sup> /h]	Quantity [m <sup>3</sup> /h] of water flowing through a valve at a pressure loss of 1 bar (according to VDE/VDI Norm 2173).
$P_1$	[bar]	Pressure before the valve (upstream).
$P_2$	[bar]	Pressure after the valve (downstream).
$\Delta p$	[bar]	Actual pressure loss across the valve ( $P_1 - P_2$ ).
$G$	[kg/h]	Mass flow through the valve.
$V$	[m <sup>3</sup> /h]	Volume flow through the valve.
$\rho$	[kg/m <sup>3</sup> ]	Density of the refrigerant before the valve.
$C_A$		Calculation factor (See <a href="#">Figure 20</a> ).

**Imperial units**

Mass flow:

$$C_v = \frac{0.95 \times G}{\sqrt{\rho \times \Delta p}} = 31.6 \times G \times C_A \text{ [USgal/min .]}$$

Volume flow:

$$C_v = \frac{0.127 \times V}{\sqrt{\frac{\Delta p}{\rho}}} \text{ [USgal/min .]}$$

$C_v$	[US gal/min]	Quantity [US gal/min] of water flowing through a valve at a pressure loss of 1 psi.
$P_1$	[psi]	Pressure before the valve (upstream).
$P_2$	[psi]	Pressure after the valve (downstream).
$\Delta p$	[psi]	Actual pressure loss across the valve ( $P_1 - P_2$ ).
$G$	[lb/min]	Mass flow through the valve.
$V$	[US gal/min]	Volume flow through the valve.
$\rho$	[lb/ft <sup>3</sup> ]	Density of the refrigerant before the valve.
$C_A$		Calculation factor (See <a href="#">Figure 20</a> ).



Figure 10: REG-SA 10 and REG-SB 10

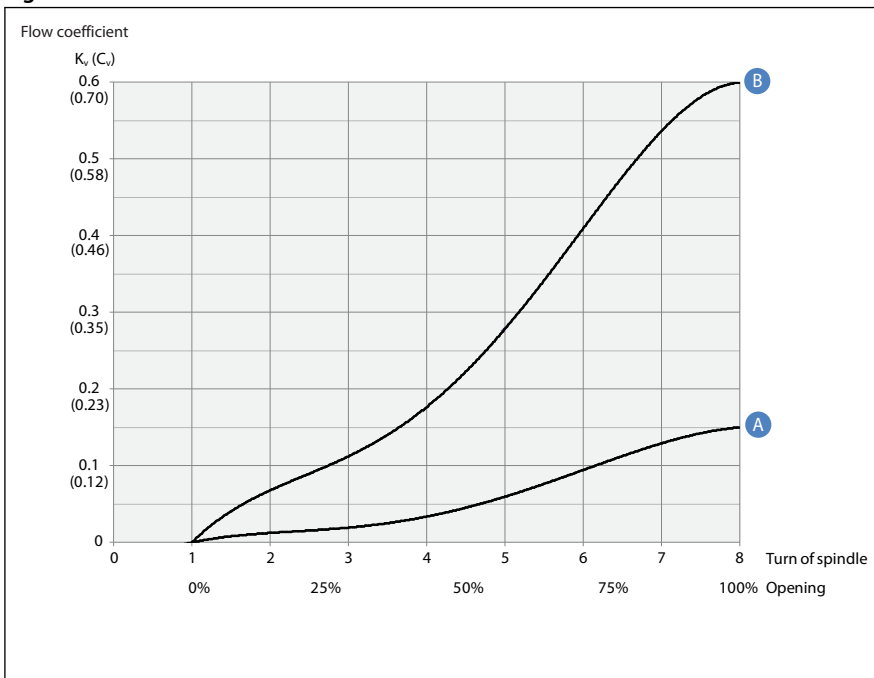


Figure 11: REG-SA 15-20 and REG-SB 15-20

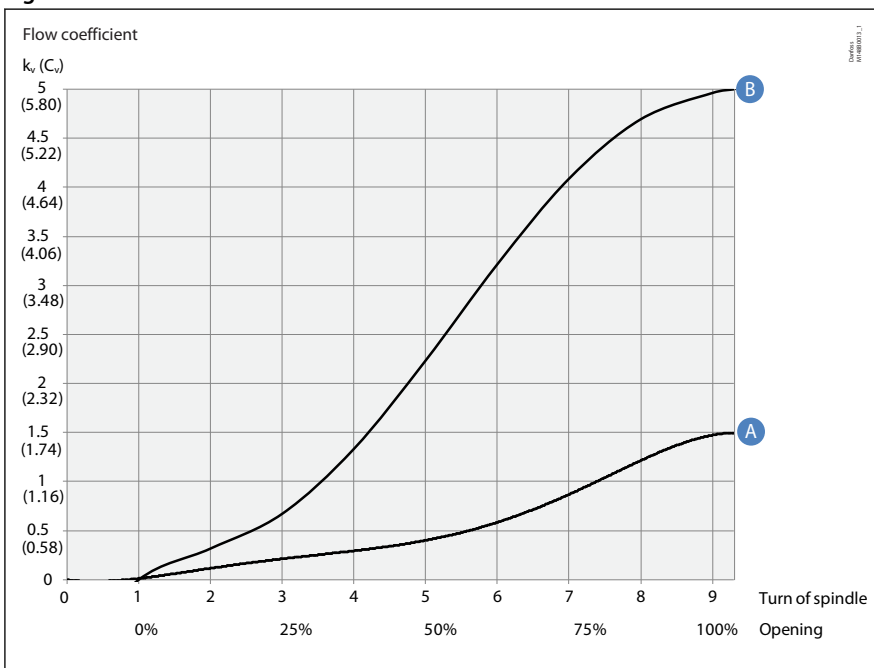


Figure 12: REG-SA 25-40 and REG-SB 25-40

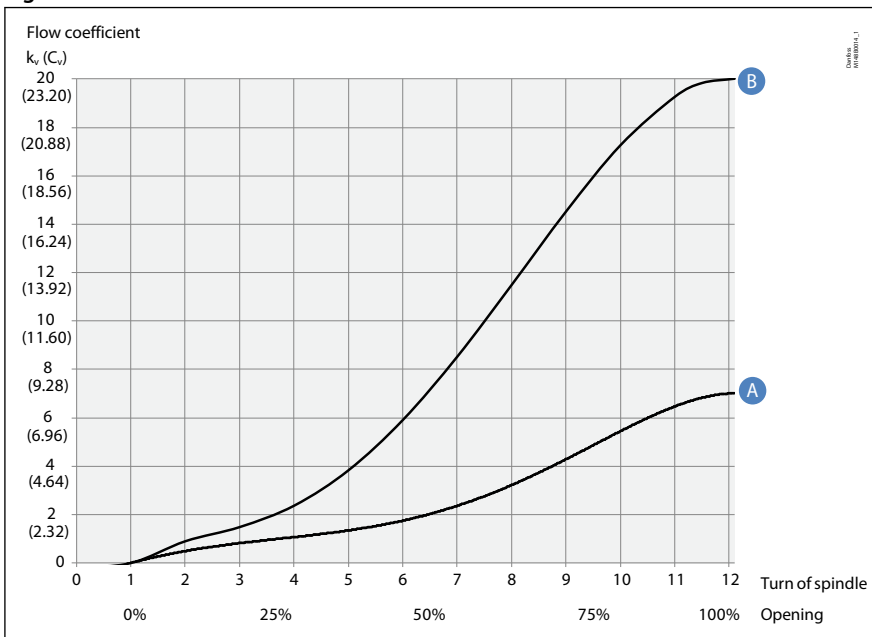


Figure 13: REG-SB 50

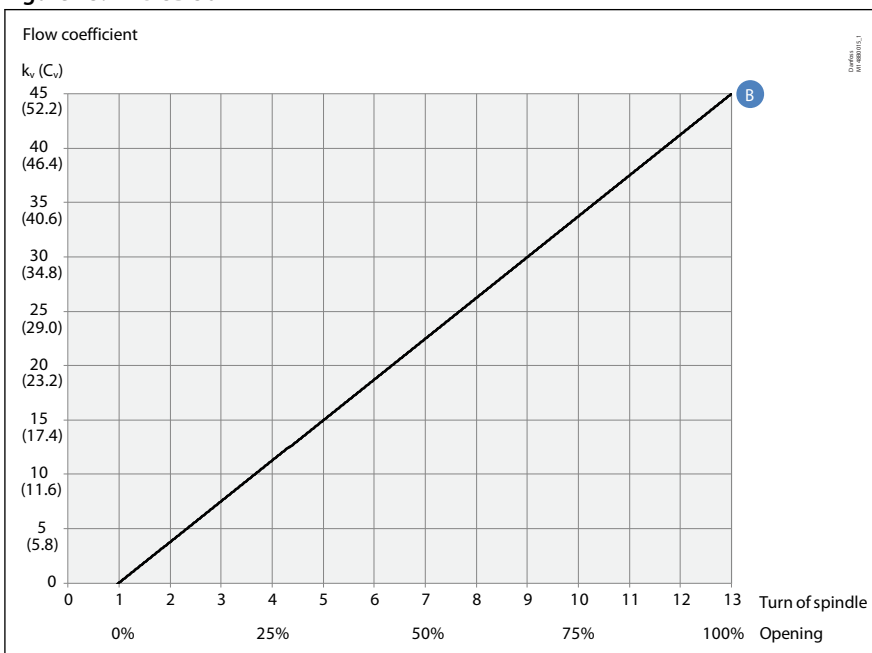
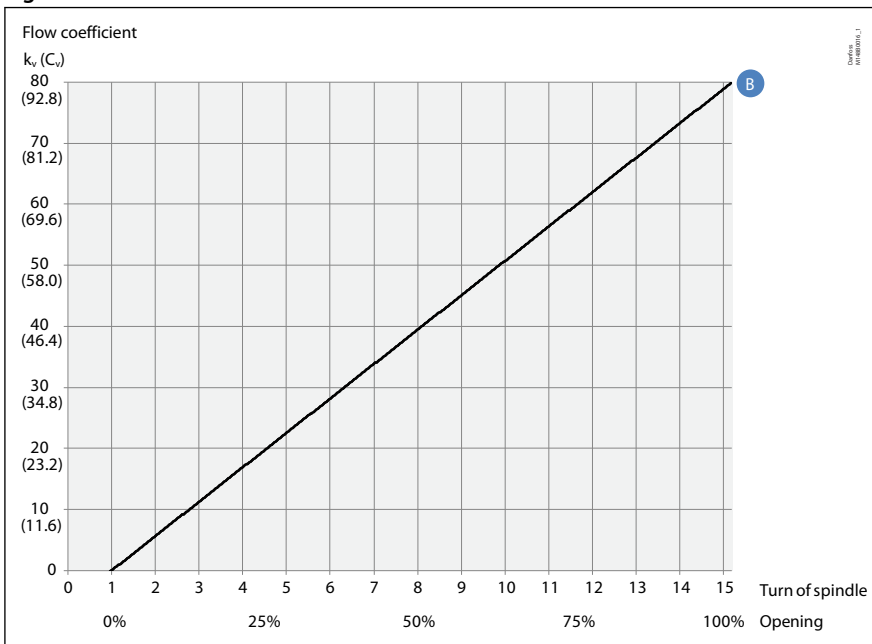


Figure 14: REG-SB 65



Liquid R 717, density: 670 kg/m<sup>3</sup> [42 lb/ft<sup>3</sup>]

Figure 15: REG-SA 10 and REG-SB 10

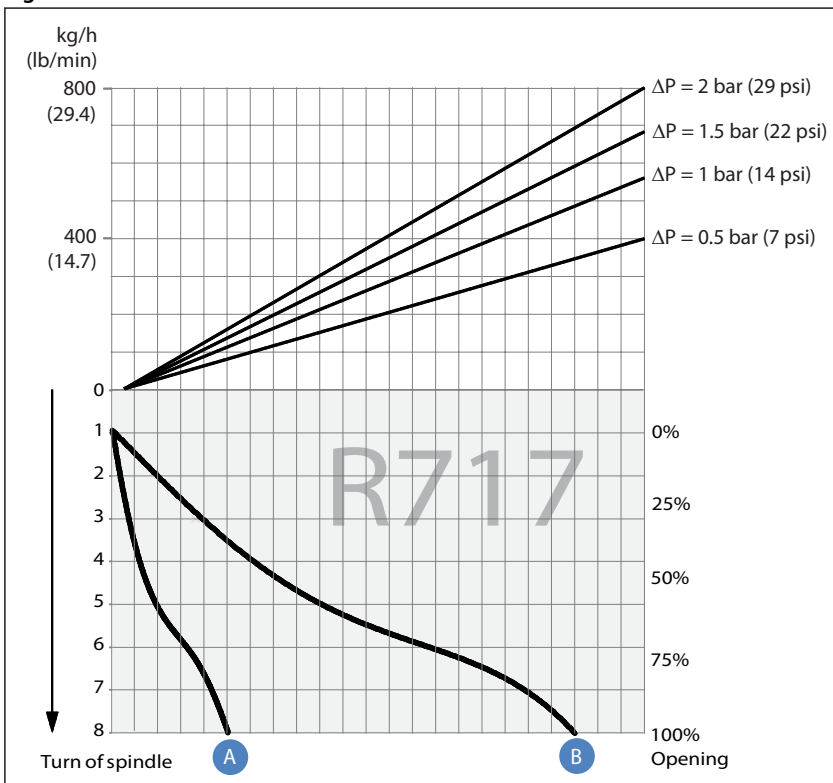


Figure 16: REG-SA 15-20 and REG-SB 15-20

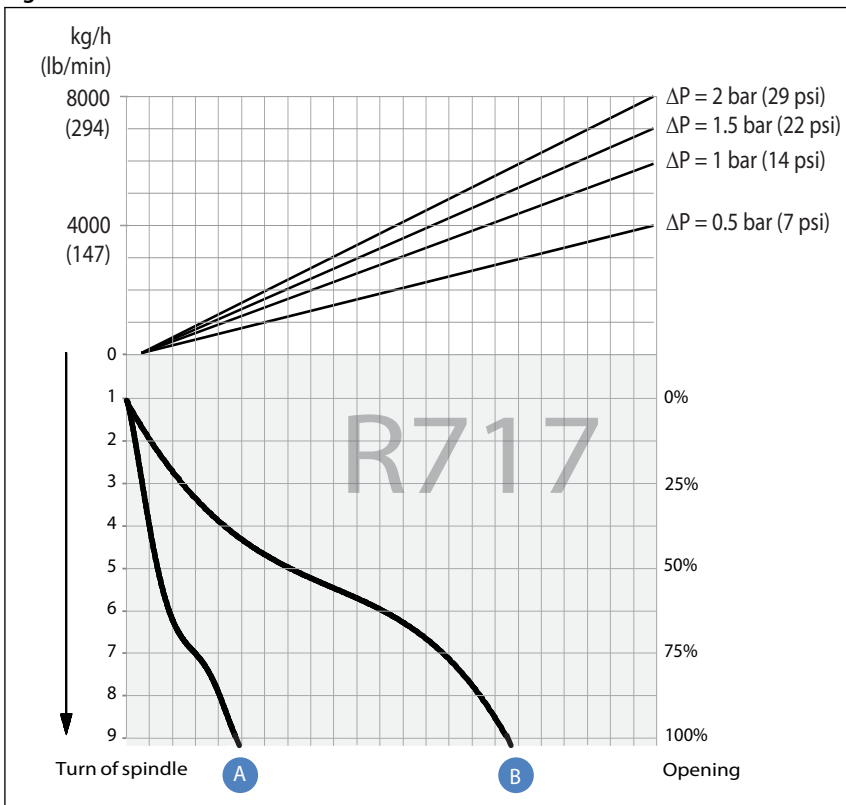


Figure 17: REG-SA 25-40 and REG-SB 25-40

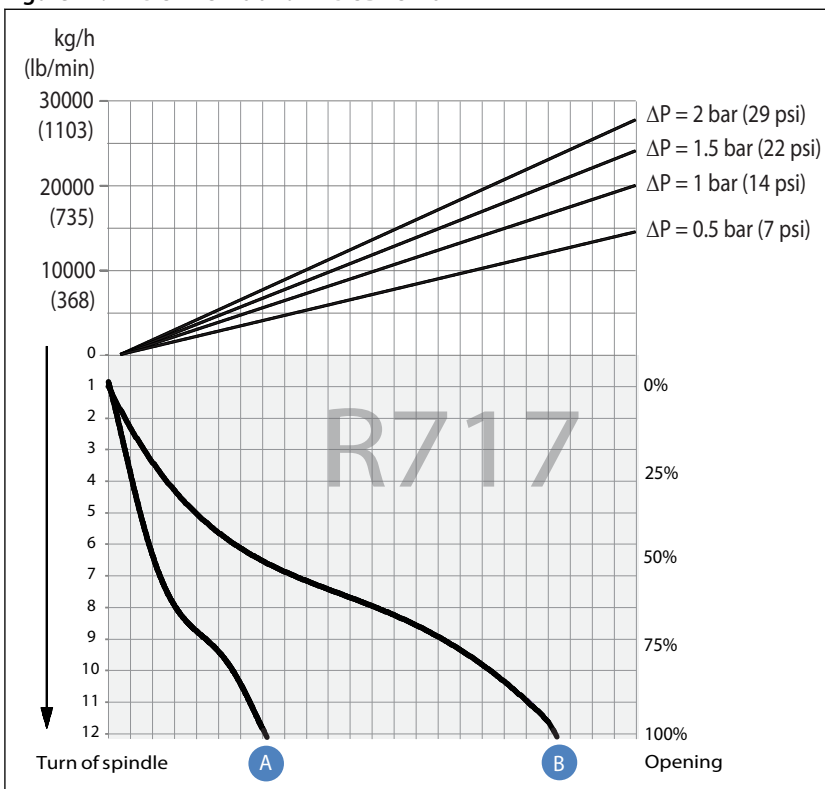


Figure 18: REG-SB 50

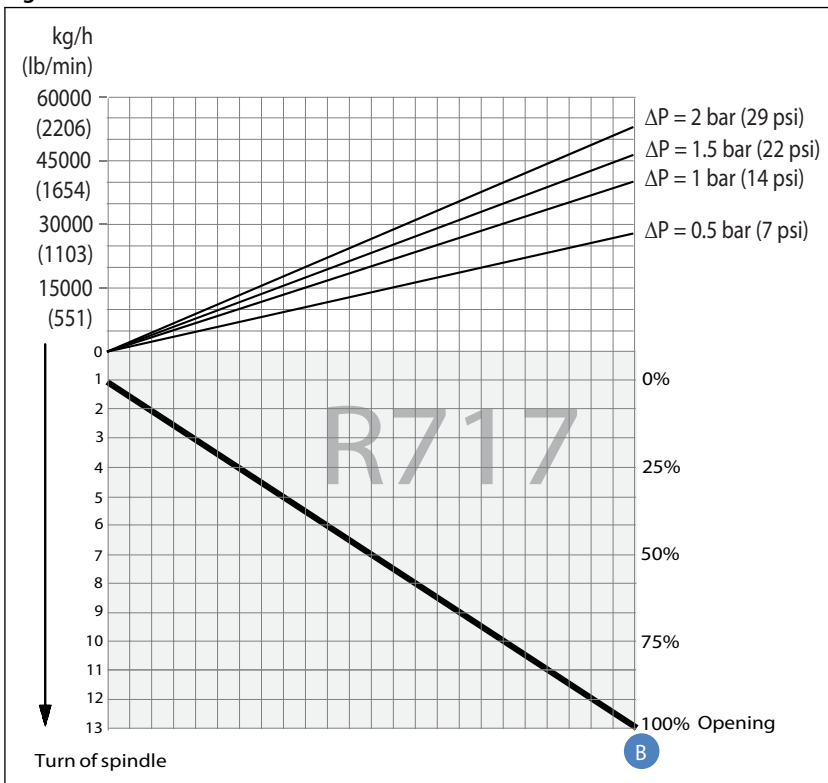


Figure 19: REG-SB 65

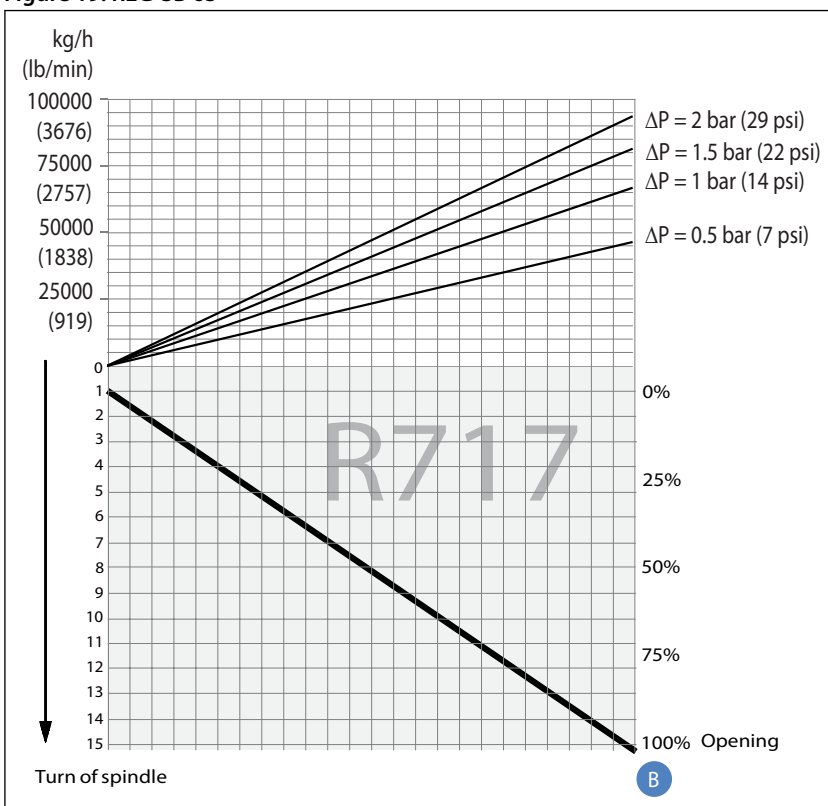
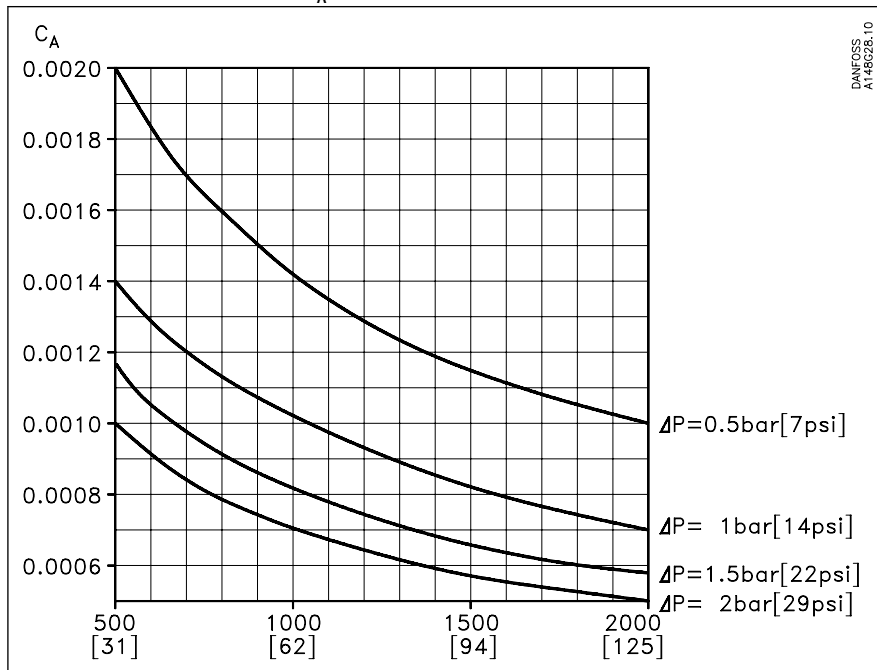


Figure 20: Calculation factor  $C_A$



**NOTE:**

For choice of valve size and connection see "".

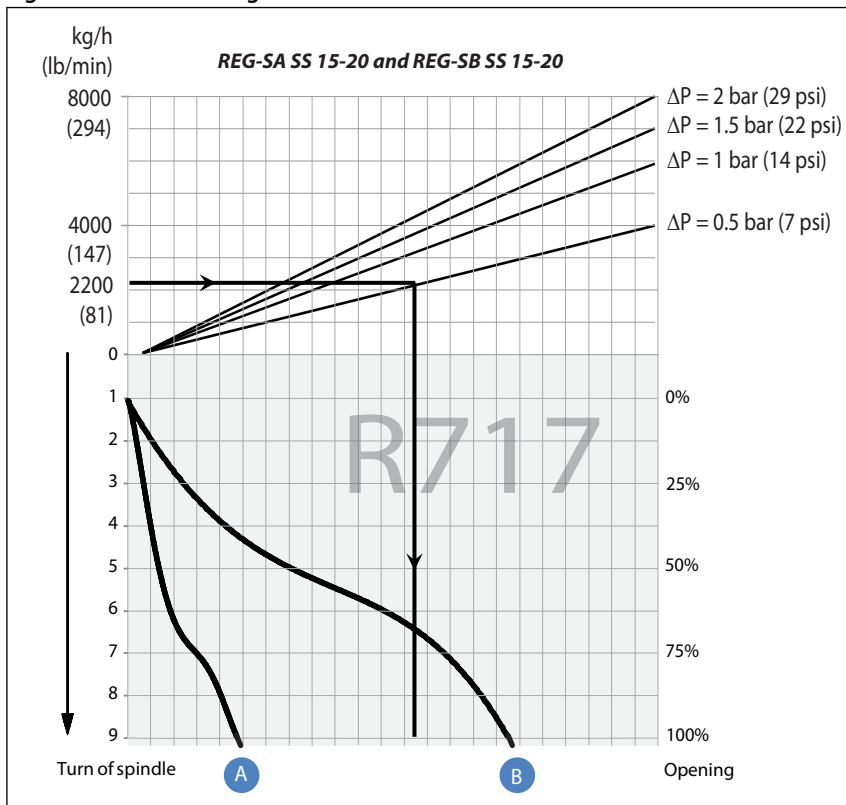
**Computation and selection Example 1**

Refrigerant: R 717  
 Refrigerant flow: 2200 kg/h  
 Pressure drop:  $\Delta p = 0.5$  bar

The above mentioned example is illustrated on the following flow rate diagram and shows that REG-SB 15 and 20 with cone B can be used. The main rule is that nominal regulation range should be below 85% opening degree. If the arrowline is crossing 2 cone curves, the smaller cone should be selected if opening degree < 85%.

The example is only correct if the density of the refrigerant is approx. 670 (kg/m<sup>3</sup>), and there must be no build-up of flash gas in the valve.

Figure 21: Flow rate diagram



## Computation and selection Example 2

Brine, density  $\rho$ : 1150 [kg/m<sup>3</sup>]

Brine flow G: 2,700 [kg/h]

Pressure drop  $\Delta p$ : 0.5 [bar]

In this example it is not possible to use the selection diagrams (Figure 15, Figure 16, Figure 17, Figure 18, Figure 19) as the refrigerant in question is not included.

Use the curves of the  $k_v$ -values instead (Figure 10, Figure 11, Figure 12, Figure 13, Figure 14) and calculate the required  $k_v$  by means of the formulas in the "Introduction" passage at the beginning of this chapter. Alternatively calculate the  $k_v$ -values by means of the calculation factor  $C_A$  (Figure 22) and the flow rate diagram (in this example: Figure 23) as per the following calculation example.

Required  $k_v$ -value

$C_A = 0.00132$  (from Figure 22)

$k_v = C_A \times G$

$k_v = 0.00132 \times 2,700$  [kg/h]

= 3.56 [m<sup>3</sup>/h]

Calculation example:

Figure 22: Calculation factor  $C_A$

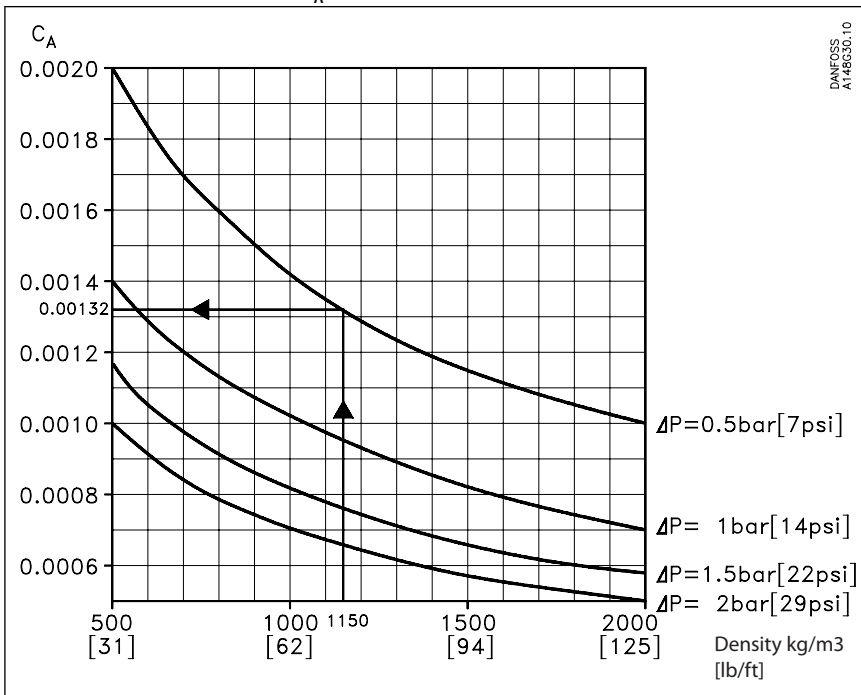
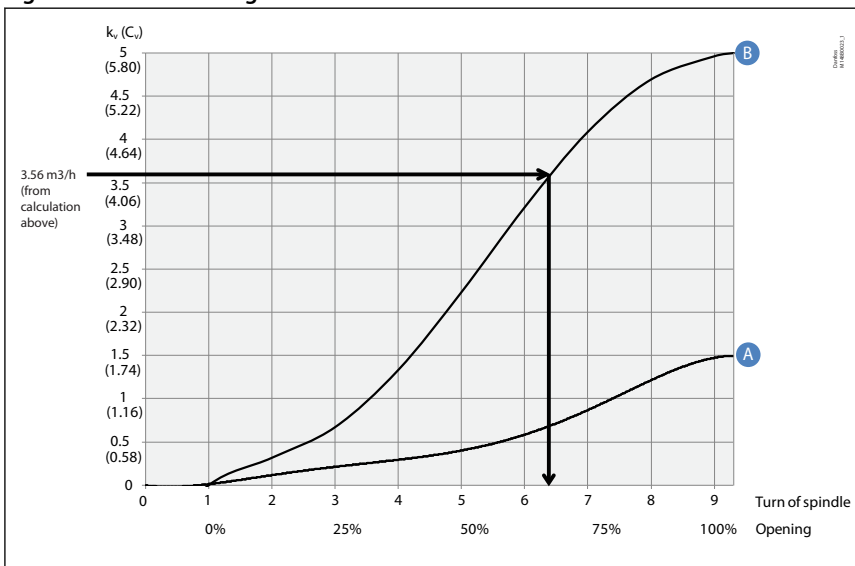


Figure 23: Flow rate diagram



REG-SB 15 and REG-SB 20 with cone B can be used.



## Material specification

Figure 24: REG-SA and REG-SB 10 - 65

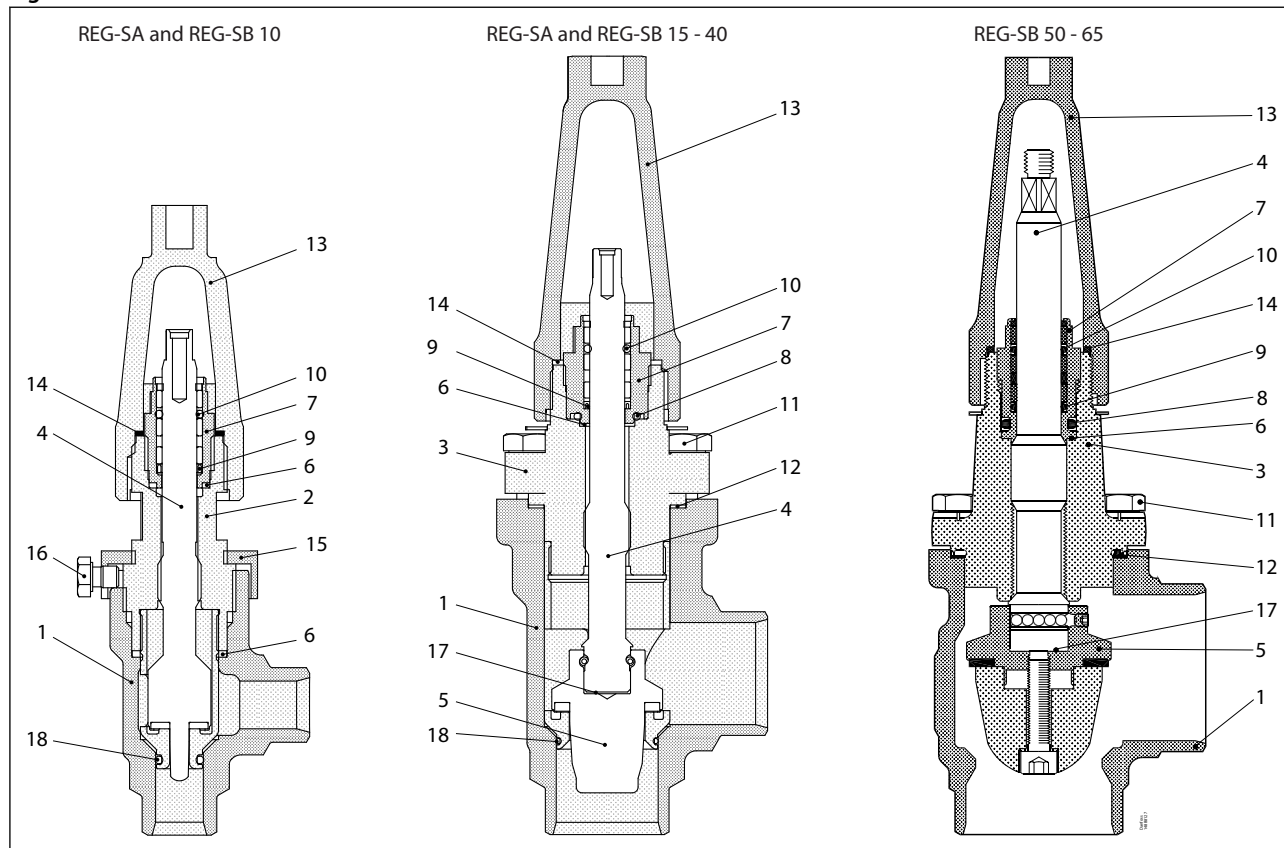


Table 8: Material and part list

No.	Part	Material	EN	ISO	ASTM
1	Housing	Steel	G20Mn5QT, 10213-3 P285QH+QT, 10222-4		LCC, A352 LF2, A350
2	Bonnet DN 10 (3/8 in.)	Steel	11SMn30 10087	Type 2, R 683-9	1213 SAE J403
3	Bonnet DN 15 - 65 (1/2 - 2 1/2 in.)	Steel	P285QH+QT 10222-4		LF2 A350
4	Spindle DN 10 - 65 (1/4 - 2 1/2 in.)	Stainless steel	X8CrNiS 18-9, 17440	Type 17, 683/13	AISI 303
5	Cone	Steel			
6	Packing washer	Aluminium			
7	Packing gland	Stainless Steel	X8CrNiS 18-9, 10088	Type 17, 683/13	AISI 303
8	O-ring	Chloroprene (Neoprene)			
9	Spring loaded Teflon ring	PTFE			
10	O-ring	Chloroprene (Neoprene)			
11	Bolts	Stainless steel	A2-70	A2-70	Type 308
12	Gasket	Fiber, non asbestos			
13	Seal cap	Aluminium			
14	Gasket for seal cap	Nylon			
15	Locking nut	Steel			
16	Screw	Steel			
17	Disk spring	Steel			
18	O-ring	Chloroprene (Neoprene) <sup>(1)</sup>			

<sup>(1)</sup> Replace the O-ring with the replacement kit for R717 Heat Pump and R1270 Propylene applications.

## Dimensions and weights

Figure 25: REG-SA and REG-SB 10 - 65 in angleway version

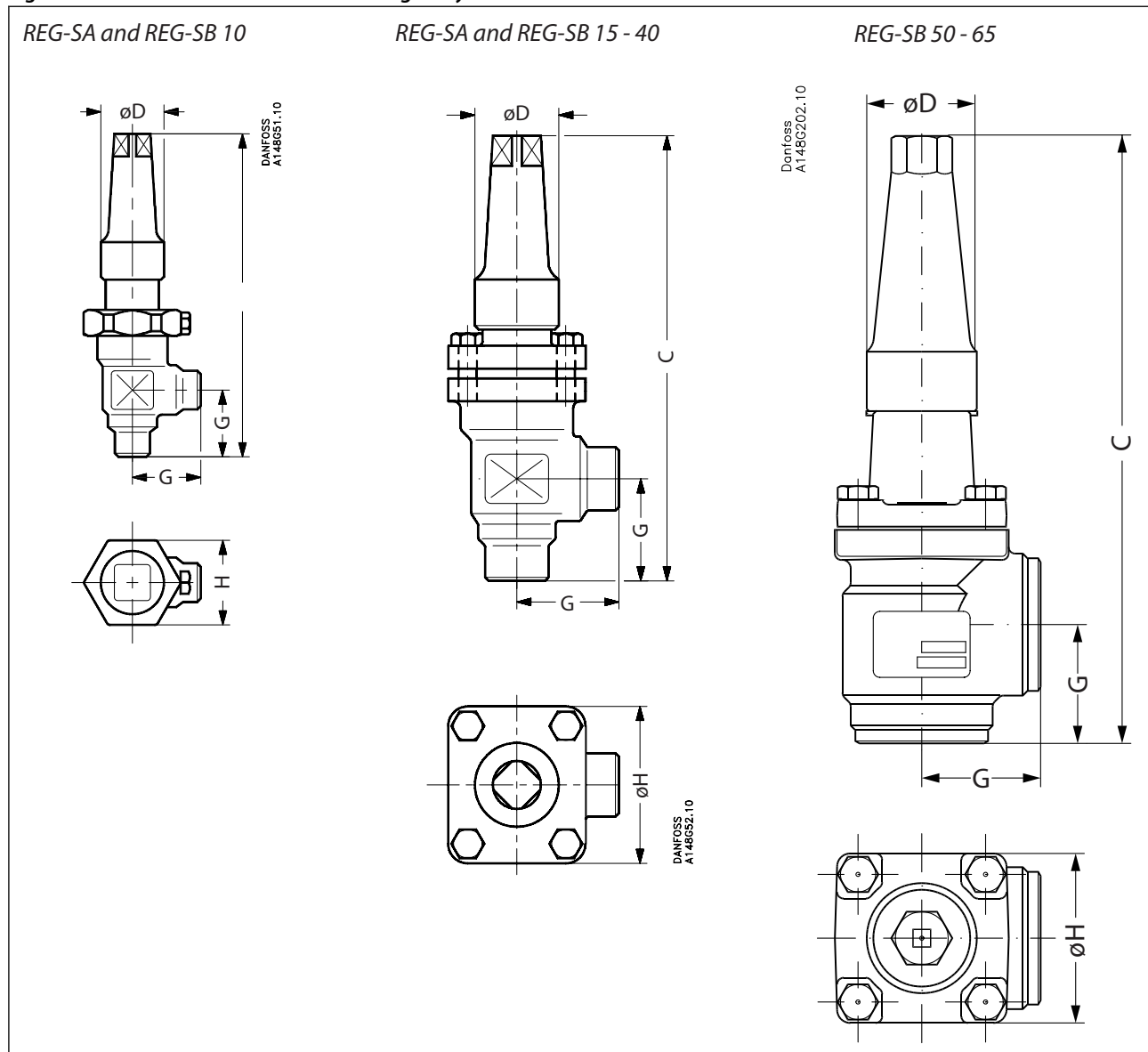


Table 9: REG-SA and REG-SB 10 - 65 in angleway version

Valve size		C	G	ØD	ØH	Weight
REG-SA/SB 10	mm	139	30	30	36	0.8 kg
REG-SA/SB (¾)	in.	5.47	1.18	1.18	1.42	1.8 lb
REG-SA/SB 15-20	mm	182	45	38	60	1.4 kg
REG-SA/SB (½-¾)	in.	7.17	1.77	1.50	2.36	3.1 lb
REG-SA/SB 25-40	mm	237	55	50	70	2.4 kg
REG-SA/SB (1-1½)	in.	9.33	2.17	1.97	2.76	5.3 lb
REG-SB 50	mm	315	60	50	77	3.2 kg
REG-SB (2 in.)	in.	12.4	2.36	1.97	3.03	7.1 lb
REG-SB 65	mm	335	70	50	90	4.8 kg
REG-SB (2½ in.)	in.	13.19	2.76	1.97	3.54	10.6 lb
REG-SA/SB 32 SOC	mm	275	62	50	70	2.9 kg
REG-SA/SB (1¼ in.) SOC	in.	10.83	2.44	1.97	2.76	6.4 lb
REG-SA/SB 40 SOC	mm	275	62	50	70	2.9 kg
REG-SA/SB (1½ in.) SOC	in.	10.83	2.44	1.97	2.76	6.4 lb
REG-SB 50 SOC	mm	320	65	50	77	4.1 kg
REG-SB (2 in.) SOC	in.	12.60	2.56	1.97	3.03	9.0 lb

Hand operated regulating valve, type REG-SA and REG-SB 10-65

**NOTE:**

Specified weights are approximate values only.

Figure 26: REG-SA and REG-SB 10 - 65 in straightway version

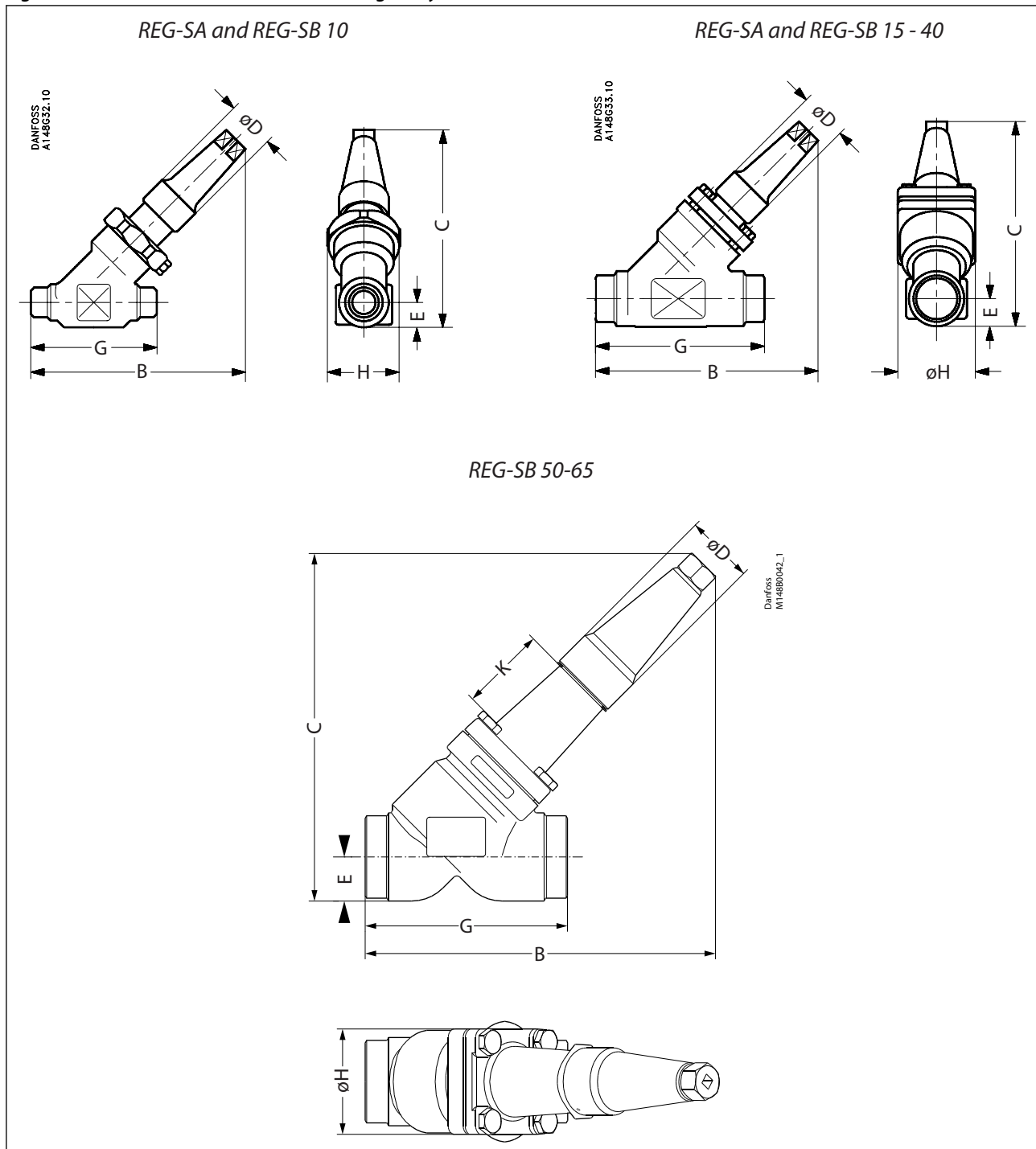


Table 10: REG-SA and REG-SB 10 - 65 in straightway version

Valve size		C	B	E	G	ØD	ØH	Weight
REG-SA/SB 10	mm	110	120	13	70	30	36	0.8 kg
REG-SA/SB (¾)	in.	4.33	4.72	0.51	2.76	1.18	1.42	1.8 lb
REG-SA/SB 15-20	mm	145	155	20	120	38	60	2.0 kg
REG-SA/SB (½-¾)	in.	5.71	6.10	0.79	4.72	1.50	2.36	4.4 lb
REG-SA/SB 25-40	mm	200	215	26	155	50	70	3.0 kg
REG-SA/SB (1-1½)	in.	7.87	8.46	1.02	6.10	1.97	2.76	6.6 lb
REG-SB 50	mm	257	250	32	148	50	77	4.2 kg

## Hand operated regulating valve, type REG-SA and REG-SB 10-65

Valve size		C	B	E	G	ØD	ØH	Weight
REG-SB (2 in.)	in.	10.12	10.20	1.26	5.83	1.97	3.03	9.3 lb
REG-SB 65	mm	280	284	40	176	50	90	6.3 kg
REG-SB (2½ in.)	in.	11.02	11.18	1.57	6.93	1.97	3.54	13.9 lb
REG 32 SOC	mm	209	222	27.4	155	50	70	3.0 kg
REG (1¼ in.) SOC	in.	8.23	8.74	1.08	6.10	1.97	2.76	6.6 lb
REG 40 SOC	mm	213	222	31.0	155	50	70	3.0 kg
REG (1½ in.) SOC	in.	8.39	8.74	1.22	6.10	1.97	2.76	6.6 lb
REG-SB 50 SOC	mm	261	266	37	162	50	77	5.1 kg
REG-SB (2 in.) SOC	in.	10.28	10.47	1.26	6.38	6.38	3.03	11.2 lb

**i NOTE:**

Specified weights are approximate values only.

## Ordering

### How to order

The table below is used to identify the valve required.

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range. For further information please contact your local Danfoss Sales Company.

**Table 11: Type codes**

Valve type	REG	Hand operated regulating valves																	
Nominal size in mm (Valve size measured on the connection diameter)			Available connection types																
			A		D		G		SOC		FPT								
	10	DN 10	x		x		x												
	15	DN 15	x		x		x		x					x					x
	20	DN 20	x		x		x		x					x					x
	22	DN 22																	
	25	DN 25	x		x		x		x					x					x
	32	DN 32	x		x		x		x					x					x
	40	DN 40	x		x		x		x					x					
50	DN 50	x		x		x		x					x						
65	DN 65	x		x															
Connections	A	Welding branches: ANSI B 36.10 schedule 80, 15 - 40 (½ - 1½ in.) Welding branches: ANSI B 36.10 schedule 40, 50 - 65 (2 - 2½ in.)																	
	D	Welding branches: EN 10220																	
	G	Welding branches: GOST (8734-75 and 8732-78)																	
	SOC	Socket weld: ANSI B 16.11																	
	FPT	NPT inside pipe thread: ANSI/ASME B1.20.1																	
Valve housing	ANG	Angle flow																	
	STR	Straight flow																	
Cone A	Size:	Flow area [mm <sup>2</sup> ]																	
	DN 10	3.02																	
	DN 15	36.5																	
	DN 20	36.5																	
	DN 25	178																	
	DN 32	178																	
	DN 40	178																	
Cone B	Size:	Flow area [mm <sup>2</sup> ]																	
	DN 10	16																	
	DN 15	115																	
	DN 20	115																	
	DN 25	531																	
	DN 32	531																	
	DN 40	531																	
	DN 50	822																	
DN 65	1978																		

**Table 12: Available combination between valve size, cone type and valve connection**

Size	DN 10 (¾")		DN 15 (½")		DN 20 (¾")		DN 22 (⅞")		DN 25 (1")		DN 32 (1¼")		DN 40 (1½")		DN 50 (2")		DN 65 (2½")	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
DIN	x	x	x	x	x	x			x	x	x	x	x	x		x		x
ANSI	x	x	x	x	x	x			x	x	x	x	x	x		x		x
GOST	x	x	x	x	x	x			x	x	x	x	x	x		x		
SOC			x	x	x	x			x	x	x	x	x	x		x		
FPT			x	x	x	x			x	x	x	x						

x = available

## Complete REG-SA (Cone type A)

### Example:

REG-SA (Cone A) 15 DIN angleway = 148B5226

### IMPORTANT:

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

**Table 13: Butt-weld DIN (EN 10220)**

Size		Type	Code no.
mm	in.		
<b>Angleway - REG-SA with cone type A</b>			
10	3/8	REG-SA 10 D ANG	148B5102
15	1/2	REG-SA 15 D ANG	148B5226
20	3/4	REG-SA 20 D ANG	148B5326
25	1	REG-SA 25 D ANG	148B5426
32	1 1/4	REG-SA 32 D ANG	148B5527
40	1 1/2	REG-SA 40 D ANG	148B5627

**Table 14: Butt-weld DIN (EN 10220)**

Size		Type	Code no.
mm	in.		
<b>Straightway - REG-SA with cone type A</b>			
10	3/8	REG-SA 10 D STR	148B5104
15	1/2	REG-SA 15 D STR	148B5228
20	3/4	REG-SA 20 D STR	148B5328
25	1	REG-SA 25 D STR	148B5428
32	1 1/4	REG-SA 32 D STR	148B5528
40	1 1/2	REG-SA 40 D STR	148B5629

**Table 15: Butt-weld ANSI (B 36.10 Schedule 80)**

Size		Type	Code no.
mm	in.		
<b>Angleway - REG-SA with cone type A</b>			
10	3/8	REG-SA 10 A ANG	148B5106
15	1/2	REG-SA 15 A ANG	148B5202
20	3/4	REG-SA 20 A ANG	148B5302
25	1	REG-SA 25 A ANG	148B5402
32	1 1/4	REG-SA 32 A ANG	148B5502
40	1 1/2	REG-SA 40 A ANG	148B5602

**Table 16: Butt-weld ANSI (B 36.10 Schedule 80)**

Size		Type	Code no.
mm	in.		
<b>Straightway - REG-SA with cone type A</b>			
10	3/8	REG-SA 10 A STR	148B5116
15	1/2	REG-SA 15 A STR	148B5212
20	3/4	REG-SA 20 A STR	148B5312
25	1	REG-SA 25 A STR	148B5412
32	1 1/4	REG-SA 32 A STR	148B5512
40	1 1/2	REG-SA 40 A STR	148B5612

**Table 17: Socket welding ANSI (B 16.11)**

Size		Type	Code no.
mm	in.		
<b>Angleway - REG-SA with cone type A</b>			
15	1/2	REG-SA 15 SOC ANG	148B5204
20	3/4	REG-SA 20 SOC ANG	148B5304

## Hand operated regulating valve, type REG-SA and REG-SB 10-65

Size		Type	Code no.
mm	in.		
25	1	REG-SA 25 SOC ANG	148B5404
32	1¼	REG-SA 32 SOC ANG	148B5504
40	1½	REG-SA 40 SOC ANG	148B5604

**Table 18: Socket welding ANSI (B 16.11)**

Size		Type	Code no.
mm	in.		
<b>Straightway</b> - REG-SA with cone type A			
15	½	REG-SA 15 SOC STR	148B5214
20	¾	REG-SA 20 SOC STR	148B5314
25	1	REG-SA 25 SOC STR	148B5414
32	1¼	REG-SA 32 SOC STR	148B5514
40	1½	REG-SA 40 SOC STR	148B5614

**Table 19: FPT inside pipe thread, NPT (ANSI/ASME B 1.20.1)**

Size		Type	Code no.
mm	in.		
<b>Angleway</b> - REG-SA with cone type A			
15	½	REG-SA 15 FTP ANG	148B5206
20	¾	REG-SA 20 FTP ANG	148B5306
25	1	REG-SA 25 FTP ANG	148B5406
32	1¼	REG-SA 32 FTP ANG	148B5506

**Table 20: FPT inside pipe thread, NPT (ANSI/ASME B 1.20.1)**

Size		Type	Code no.
mm	in.		
<b>Straightway</b> - REG-SA with cone type A			
15	½	REG-SA 15 FTP STR	148B5216
20	¾	REG-SA 20 FTP STR	148B5316
25	1	REG-SA 25 FTP STR	148B5416
32	1¼	REG-SA 32 FTP STR	148B5516

**D** = Butt-weld DIN  
**A** = Butt-weld ANSI  
**SOC** = Socket weld  
**FPT** = Inside pipe thread  
**ANG** = Angleway  
**STR** = Straightway

### **Complete REG-SB (Cone type B)**

**Example:**

REG-SB (Cone B) 15 DIN angleway = **148B5227**

**IMPORTANT:**

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

**Table 21: Butt-weld DIN (EN 10220)**

Size		Type	Code no.
mm	in.		
<b>Angleway</b> - REG-SB with cone type B			
10	¾	REG-SB 10 D ANG	148B5103
15	½	REG-SB 15 D ANG	148B5227
20	¾	REG-SB 20 D ANG	148B5327
25	1	REG-SB 25 D ANG	148B5427
32	1¼	REG-SB 32 D ANG	148B5526

## Hand operated regulating valve, type REG-SA and REG-SB 10-65

Size		Type	Code no.
mm	in.		
40	1½	REG-SB 40 D ANG	148B5626
50	2	REG-SB 50 D ANG	148B5726
65	2½	REG-SB 65 D ANG	148B5826

**Table 22: Butt-weld DIN (EN 10220)**

Size		Type	Code no.
mm	in.		
<b>Straightway</b> - REG-SB with cone type B			
10	¾	REG-SB 10 D STR	148B5105
15	½	REG-SB 15 D STR	148B5229
20	¾	REG-SB 20 D STR	148B5329
25	1	REG-SB 25 D STR	148B5429
32	1¼	REG-SB 32 D STR	148B5529
40	1½	REG-SB 40 D STR	148B5628

**Table 23: Butt-weld ANSI (B 36.10 Schedule 80)**

Size		Type	Code no.
mm	in.		
<b>Angleway</b> - REG-SB with cone type B			
10	¾	REG-SB 10 A ANG	148B5107
15	½	REG-SB 15 A ANG	148B5203
20	¾	REG-SB 20 A ANG	148B5303
25	1	REG-SB 25 A ANG	148B5403
32	1¼	REG-SB 32 A ANG	148B5503
40	1½	REG-SB 40 A ANG	148B5603

**Table 24: Butt-weld ANSI (B 36.10 Schedule 80)**

Size		Type	Code no.
mm	in.		
<b>Straightway</b> - REG-SB with cone type B			
10	¾	REG-SB 10 A STR	148B5117
15	½	REG-SB 15 A STR	148B5213
20	¾	REG-SB 20 A STR	148B5313
25	1	REG-SB 25 A STR	148B5413
32	1¼	REG-SB 32 A STR	148B5513
40	1½	REG-SB 40 A STR	148B5613

**Table 25: Butt-weld ANSI (B 36.10 Schedule 40)**

Size		Type	Code no.
mm	in.		
<b>Angleway</b> - REG-SB with cone type B			
50	2	REG-SB 50 A ANG	148B5706
65	2½	REG-SB 65 A ANG	148B5806

**Table 26: Butt-weld ANSI (B 36.10 Schedule 40)**

Size		Type	Code no.
mm	in.		
<b>Angleway</b> - REG-SB with cone type B			
50	2	REG-SB 50 A STR	148B5724
65	2½	REG-SB 65 A STR	148B5809

**Table 27: Socket welding ANSI (B 16.11)**

Size		Type	Code no.
mm	in.		
<b>Angleway</b> - REG-SB with cone type B			
15	½	REG-SB 15 SOC ANG	148B5205
20	¾	REG-SB 20 SOC ANG	148B5305
25	1	REG-SB 25 SOC ANG	148B5405



## Hand operated regulating valve, type REG-SA and REG-SB 10-65

Size		Type	Code no.
mm	in.		
32	1¼	REG-SB 32 SOC ANG	148B5505
40	1½	REG-SB 40 SOC ANG	148B5605
50	2	REG-SB 50 SOC ANG	148B5727

**Table 28: Socket welding ANSI (B 16.11)**

Size		Type	Code no.
mm	in.		
<b>Angleway - REG-SB with cone type B</b>			
15	½	REG-SB 15 SOC STR	148B5215
20	¾	REG-SB 20 SOC STR	148B5315
25	1	REG-SB 25 SOC STR	148B5415
32	1¼	REG-SB 32 SOC STR	148B5515
40	1½	REG-SB 40 SOC STR	148B5615
50	2	REG-SB 50 SOC STR	148B5725

**Table 29: FPT inside pipe thread, NPT (ANSI/ASME B 1.20.1)**

Size		Type	Code no.
mm	in.		
<b>Angleway - REG-SB with cone type B</b>			
15	½	REG-SB 15 FTP ANG	148B5207
20	¾	REG-SB 20 FTP ANG	148B5307
25	1	REG-SB 25 FTP ANG	148B5407
32	1¼	REG-SB 32 FTP ANG	148B5507

**Table 30: FPT inside pipe thread, NPT (ANSI/ASME B 1.20.1)**

Size		Type	Code no.
mm	in.		
<b>Straightway - REG-SB with cone type B</b>			
15	½	REG-SB 15 FTP STR	148B5217
20	¾	REG-SB 20 FTP STR	148B5317
25	1	REG-SB 25 FTP STR	148B5417
32	1¼	REG-SB 32 FTP STR	148B5517

**D** = Butt-weld DIN  
**A** = Butt-weld ANSI  
**SOC** = Socket weld  
**FPT** = Inside pipe thread  
**ANG** = Angleway  
**STR** = Straightway

### Ordering REG-SA/SB from the parts programme

Figure 27: Example (select from table 31: SVL valve housings w/different connections and table 32: REG complete top part including gaskets and bolts)

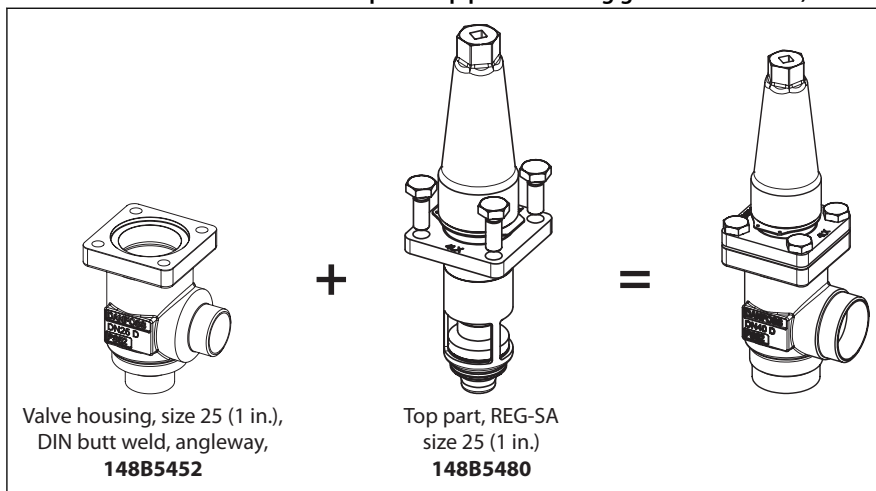


Figure 28: DN 10 mm (3/8 in.)

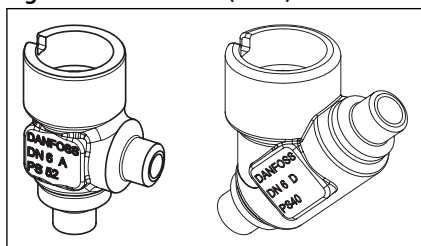


Figure 29: DN 15-65 mm (1/2 - 2 1/2 in.)

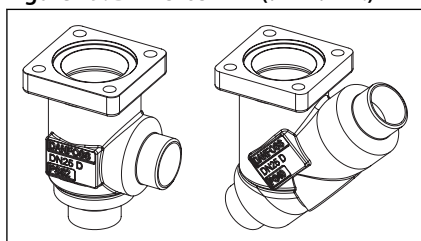


Table 31: SVL valve housings w/different connections

Sizes [DN]		Valve Housing SVL									
		DIN-Butt weld		ANSI-Butt weld		GOST-Butt-weld		SOC		FPT	
mm	in.	ANG	STR	ANG	STR	ANG	STR	ANG	STR	ANG	STR
10	3/8	148B5122	148B5123	148B5124	148B5125	148B5134	148B5135				
15	1/2	148B5252	148B5253	148B5254	148B5255	148B5391	148B5392	148B5256	148B5257	148B5258	148B5259
20	3/4	148B5352	148B5353	148B5354	148B5355	148B5393	148B5394	148B5356	148B5357	148B5358	148B5359
25	1	148B5452	148B5453	148B5454	148B5455	148B5498	148B5499	148B5456	148B5457	148B5458	148B5459
32	1 1/4	148B5576	148B5577	148B5578	148B5579	148B5593	148B5594	148B5580	148B5581	148B5582	148B5583
40	1 1/2	148B5652	148B5653	148B5654	148B5655	148B5681	148B5682	148B5656	148B5657		
50	2	148B5741	148B5742	148B5743	148B5744	148B5759	148B5760	148B5745	148B5746		
65	2 1/2	148B5816	148B5817	148B5818	148B5819	148B5816	148B5817	148B5816	148B5817		

## Hand operated regulating valve, type REG-SA and REG-SB 10-65

Figure 30: REG-SA/SB 10    Figure 31: REG-SA/SB 15-65    Figure 32: REG-LA/LB 15-40

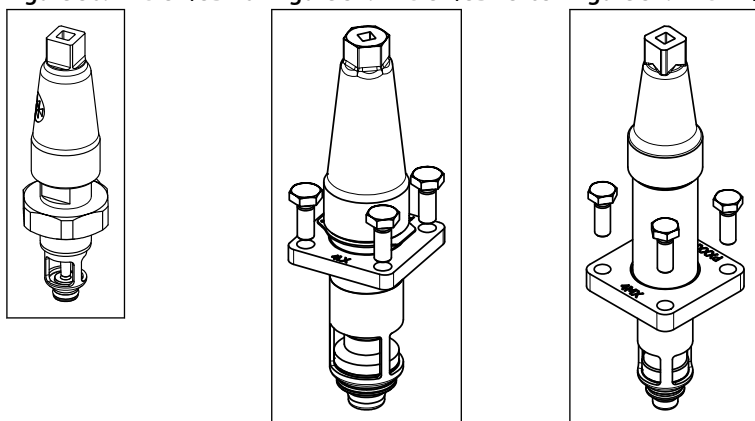


Table 32: REG complete top part including gaskets and bolts

Sizes [DN]		Complete top part			
mm	in.	REG-SA	REG-SB	REG-LA	REG-LB
10	3/8	148B5112	148B5113		
15	1/2	148B5280	148B5281	148B6401	148B6402
20	3/4				
25	1	148B5480	148B5481	148B6403	148B6404
32	1 1/4				
40	1 1/2				
50	2		148B5734		
65	2 1/2		148B5824		

Replacement kit (O-ring replacement) for R717 Ammonia Heat Pump and Propylene applications (including ID tag).

Table 33: O-ring kit

Size (DN)		O-ring kit for	
mm	in.	R717 Heat pump <sup>(1)</sup>	R1270 Propylene
10	3/8	148B6084	148B6085
15	1/2	148B6070	148B6077
20	3/4		
25	1	148B6096	148B6097
32	1 1/4		
40	1 1/2		


<sup>(1)</sup> Replacement kits for R717 Ammonia Heat Pump is applicable for continuous operating temperature between 100 °C to 150 °C (212 °F to 302 °F)

## Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at [danfoss.com](http://danfoss.com) or contact your local Danfoss representative if you have any questions.

**Table 34: Pressure Equipment Directive (PED)**

	REG valves are approved according to the European standard specified in the Pressure Equipment Directive and are CE marked.
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**Table 35: REG-SA and REG-SB valves**

REG-SA and REG-SB valves		
Nominal bore	DN = < 25 mm (1 in.)	DN32-65 mm (1¼ - 2½ in.)
Classified for	Fluid group I	
Category	Article 3, paragraph 3	II

**Table 36: Certificates and declarations**

File name	Document type	Document topic	Approval authority
BV 03709-F0 BV	Marine - Safety Certificate	-	BV
TAP0000002 Rev. 2	Marine - Safety Certificate	-	DNV GL
033F0685.AK	EU Declaration	EMCD/PED	Danfoss
033F0691.AE	Manufacturers Declaration	RoHS	Danfoss
RMRS 19.10048.266	Marine - Safety Certificate	-	RMRS

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