

Data sheet

Check & stop valve, SCA-X

Check valve, CHV-X



SCA-X are check valves with a built-in shut-off valve function. SCA-X valves are available in angleway versions.

CHV-X are check valves only. CHV-X are available in both angleway and straightway versions.

The valves are designed to open at very low differential pressures, allow favourable flow conditions and are easy to disassemble for inspection and service.

The SCA-X is equipped with vented cap and has internal backseating enabling the spindle seal to be replaced whilst the valve still under pressure.

Laser cut V-ports provide excellent opening characteristics (SCA-X/CHV-X 50-125).

The valve cone has a built-in flexibility to ensure a precise and tight closing towards the valve seat.

A well balanced dampening effect between the piston and the cylinder gives an optimal protection during low loads and against pulsations.

Features

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO₂), Propane, Butane, Iso-Butane and Ethane.
R717 Heat Pump and Propylene applications with replaced O-ring.
- Modular Concept:
 - Each valve housing is available with several different connection types and sizes.
 - Possible to convert SCA-X or CHV-X to any other product in the Flexline™ SVL family (Hand operated regulating valve, shut-off 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 open at a very low differential pressure of 0.04 bar / 0.58 psig.
- Designed with a built-in damping chamber preventing valve flutter in case of low refrigerant velocity and/or low density.
- Each valve is clearly marked with type, size and performance range.
Additional ID ring to be installed when preparing for Ammonia Heat Pump or Propylene application.
- Easy to disassemble for inspection and service.
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure.
- Optimal flow characteristics ensuring quick opening to the fully open position.
- Protection against pulsation by built-in damping facility.
- Housing and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities.
- Equipped with Stainless steel bolts.
- Max. working pressure: 52 bar g / 754 psi g
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Classification: DNV, CRN, BV, EAC etc.
To get an updated list of certification on the products please contact your local Danfoss Sales Company.

Design

Connections

Available with the following connections:

- Butt-weld DIN (EN 10220)
DN 15 - 125 (½ - 5 in.)
- Butt-weld ANSI (B 36.10 Schedule 80),
DN 15 - 40 (½ - 1½ in.)
- Butt-weld ANSI (B 36.10 Schedule 40),
DN 50 - 125 (2 - 5 in.)
- Butt-weld GOST, (8734-75 and 8732-78)
DN 15 - 125 (½ - 5 in.)
- Socket-weld ANSI (B 16.11),
DN 50 (2 in.)

Housing

The housing is made from special, cold resistant steel.

Valve cone

Valve cone with built in metallic stop - prevents damage to teflon ring in case of overtightening.

Damping chamber

The chamber is filled with refrigerants (gas or liquid), which provides a damping effect when the valve opens and closes.

Spindle (SCA-X)

Made of polished stainless steel, which is ideal for O-ring sealing.

Packing Gland (SCA-X)

The "full temperature range" packing gland is the standard for the entire SVL platform.

This ensures perfect tightness throughout the whole temperature range:
-60 – 150 °C / -76 – 302 °F.

Pressure Equipment Directive (PED)

The SCA-X/CHV-X valves are approved according to the European standard specified in the Pressure Equipment Directive and are CE marked.

For further details / restrictions - see the product instruction.

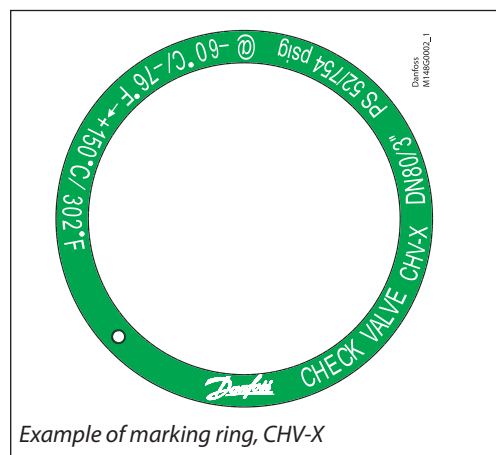
Installation

The valve must be mounted vertically with the cone downwards.

The valve is designed to resist very 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 installation instructions for SCA-X/CHV-X.

If cold refrigeration oil having low viscosity enters and settles in the damping chamber, problems with the check valve may arise. Consequently, it may be necessary to modify the valve for more viscous liquids by enlarging the hole to the damping chamber.



| SCA-X/CHV-X valves | | | |
|--------------------|------------------------|-------------------------|----------------------------|
| Nominal bore | DN = < 25 mm (1 in.) | DN32-80 mm (1¼ - 3 in.) | DN100 - 125 mm (4 - 5 in.) |
| Classified for | Fluid group I | | |
| Category | Article 3, paragraph 3 | II | III |

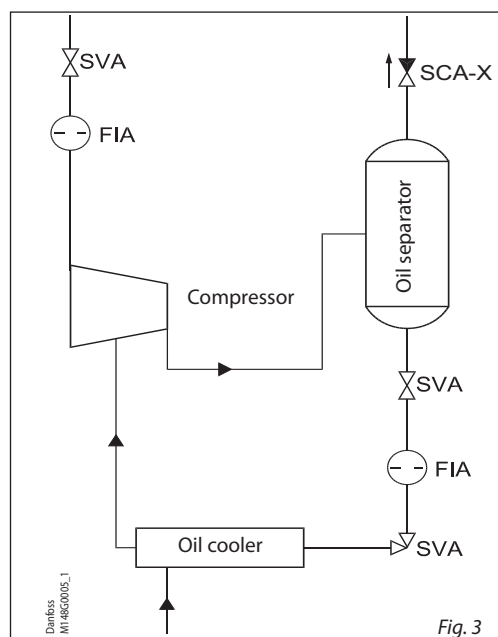
Application

Figure 3 shows the check & stop valve SCA-X in the discharge line of a screw compressor unit. The SCA-X valve in the discharge line prevents "back condensation" in the oil separator as well as pressure equalising through the compressor.

Compared to an ordinary shut-off and check valve arrangement the combined check & stop valve solution, as shown, is easier to install and has lower flow resistance.

Installation of the SCA-X/CHV-X in the economizer line is **not** recommended.

For horizontal installation of the function module; please contact Danfoss.



Technical data

- *Refrigerants*
Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO₂), Propane, Butane, Iso-Butane and Ethane.
R717 Heat Pump and Propylene applications with replaced O-ring.
- *Temperature range*
-60 – 150 °C / -76 – 302 °F.
- *Max. working pressure*
52 bar g / 754 psig.

Computation and selection

Introduction

When dimensioning SCA-X/CHV-X, it is important to select a valve that is best suited to all operating conditions. Therefore, it is necessary to consider both the nominal and part load working conditions.

The SCA-X/CHV-X valve can be calculated in two ways:

- Using the tables below.
- Using Coolselector®2

Example

SI-Units

Assumed working conditions:
Maximum flow $\dot{V} = 1000 \text{ m}^3/\text{h}$
Density $\rho = 3.0 \text{ kg/m}^3$
Minimum part load = 33%

US-Units

Assumed working conditions:
Maximum flow $\dot{V} = 1160 \text{ gpm}$
Density $\rho = 0.187 \text{ lb/feet}^3$
Minimum part load = 33%

Used expressions:

- Recommended velocity - C_{rec} [m/s]
- Minimum recommended velocity - $C_{min, rec}$ [m/s]
- Maximum velocity - C_{max} [m/s]
- Part load velocity - C_{part} [m/s]

Used expressions:

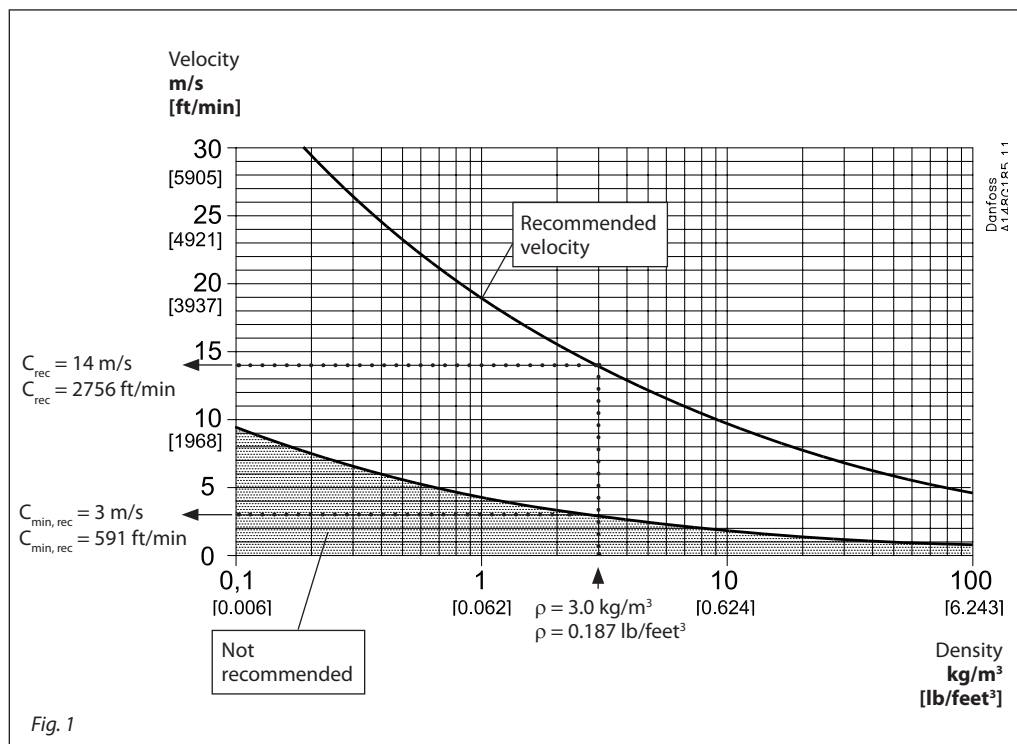
- Recommended velocity - C_{rec} [ft/min]
- Minimum recommended velocity - $C_{min, rec}$ [ft/min]
- Maximum velocity - C_{max} [ft/min]
- Part load velocity - C_{part} [ft/min]

We know the density $\rho \approx 3.0 \text{ kg/m}^3$, consequently C_{rec} as well as $C_{min, rec}$ can be found in the figure below (standard valve).

We know the density $\rho \approx 0.187 \text{ lb/feet}^3$, consequently C_{rec} as well as $C_{min, rec}$ can be found in the figure (standard valve).

$C_{rec} \approx 14 \text{ m/s}$
 $C_{min, rec} \approx 3 \text{ m/s}$

$C_{rec} \approx 2756 \text{ ft/min}$
 $C_{min, rec} \approx 591 \text{ ft/min}$



Selection example continued on following page.

Computation and selection
(continued)

Knowing that $\dot{V} = 1000 \text{ m}^3/\text{h}$ (1160 gpm) fig. 2 gives the following choices:

- For SCA-X/CHV-X in size DN 100 the maximum velocity $C_{\text{max}} \approx 31 \text{ m/s}$ (6100 ft/min)
- For SCA-X/CHV-X in size DN 125 the maximum velocity $C_{\text{max}} \approx 20 \text{ m/s}$ (3900 ft/min)

In conclusion SCA-X in size DN 125 is selected because $C_{\text{max}} \approx 20 \text{ m/s}$ (3900 ft/min) comes nearest to the recommended velocity $C_{\text{rec}} \approx 14 \text{ m/s}$ (2756 ft/min) and at the same time part load conditions fulfil the requirements, as described:

If the valve in question (for instance under part load conditions) provides a velocity less than $C_{\text{min,rec}}$ the valve might start hammering and become noisy. As a result the valve may wear prematurely.

We know that $C_{\text{max}} \approx 20 \text{ m/s}$ (3900 ft/min) and that minimum part load is 33%. It follows that $C_{\text{part}} \approx 6.5 \text{ m/s}$ (1290 ft/min). Thus, $C_{\text{part}} (6.5 \text{ m/s}) > C_{\text{min,rec}} (3.0 \text{ m/s})$ and the selected SCA-X model DN125 is the perfect choice.

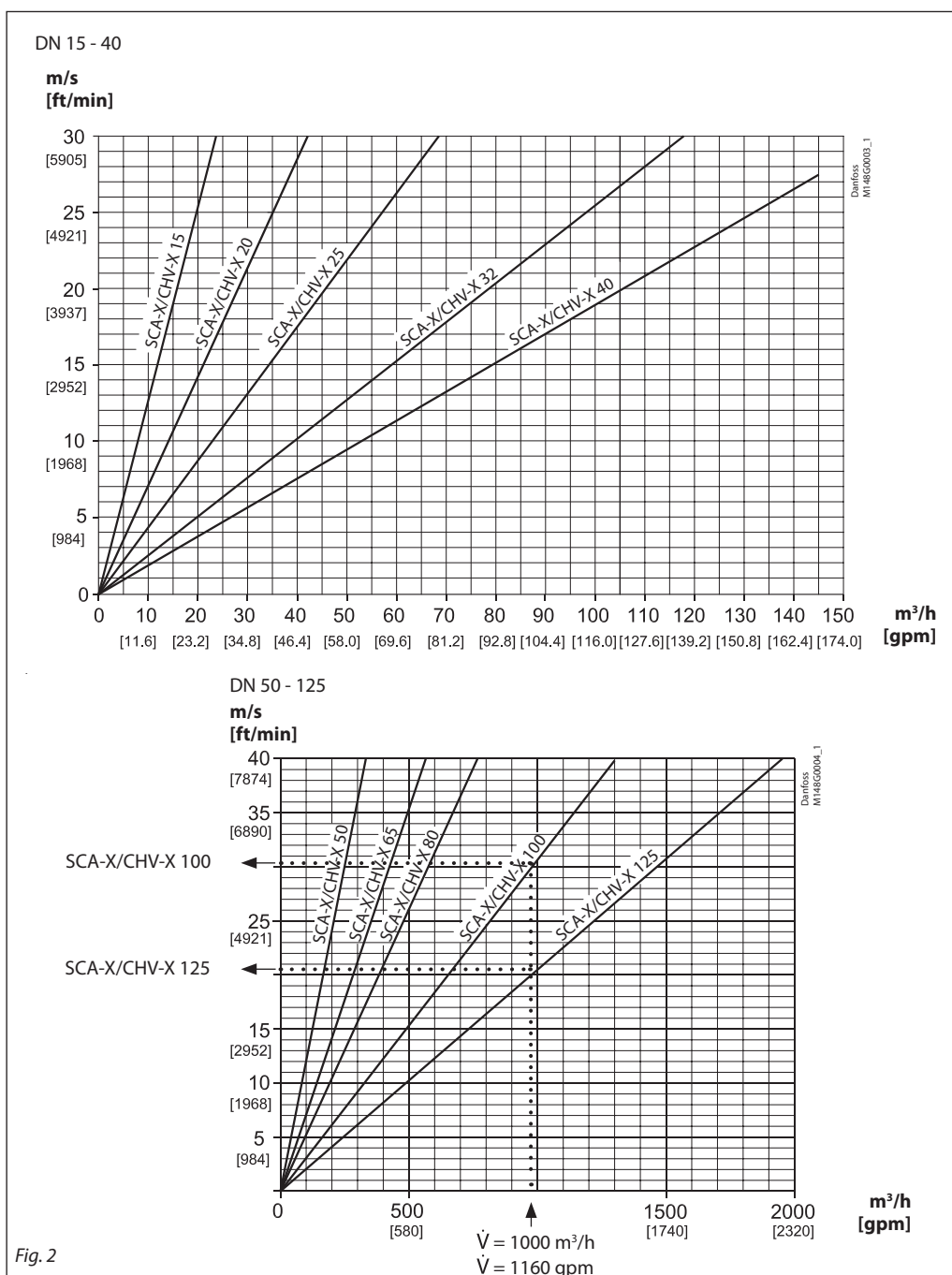
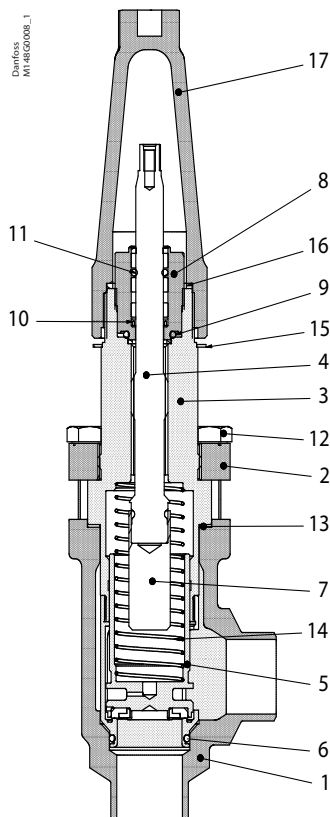
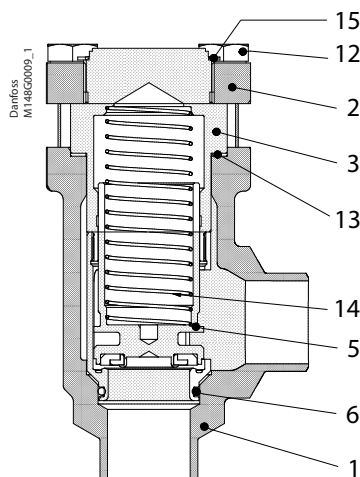


Fig. 2

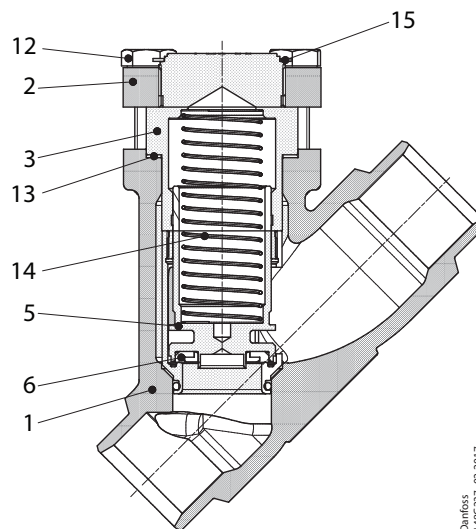
Material specification



SCA-X 15 - 40



CHV-X 15 - 40



CHV-X 15 - 40

| No. | Part | Material | DIN/EN | ISO | ASTM |
|-----|--------------------------|--------------------------------|----------------------|----------------|------------------|
| 1 | Housing | Steel | P285QH EN10222-4 | | LF2A350 |
| 2 | Bonnet, Flange | Steel | P275NL1 EN10028-3 | | |
| 3 | Bonnet, Insert | Steel | | | |
| 4 | Spindle | Stainless steel | X 10CrNiS18-9 | Type 17, 17440 | AISI 303, 683/13 |
| 5 | Cone | Steel Teflon (PTFE) | | | |
| 6 | O-ring | Cloroprene (Neoprene) | | | |
| 7 | Spindle extension | Steel | | | |
| 8 | Packing gland O-rings | Steel Cloroprene (Neoprene) | | | |
| 9 | Packing washer | Aluminium | | | |
| 10 | Spring loaded seal | Teflon (PTFE) | | | |
| 11 | O-ring | Cloroprene (Neoprene) | | | |
| 12 | Bolts | Stainless steel | A2-70 | A2-70 | Type 308 |
| 13 | Gasket | Fiber, non-asbestos | | | |
| 14 | Spring | Steel | | | |
| 15 | Identification ring | Stainless steel | | | |
| 16 | Seal cap gasket | Nylon | | | |
| 17 | Spindle seal cap | Aluminium | | | |

Material specification

The image contains three technical cross-section drawings of Danfoss valves. The first drawing on the left is for the SCA-X 50-125, showing a spindle with a seal cap and gasket (16) and a packing gland (15). The middle drawing is for the CHV-X 50-125, showing a similar design but with an eye bolt (18) instead of a spindle seal cap. The third drawing on the right is another view of the CHV-X 50-125, showing the internal spring mechanism and the valve plate (7) with a seat (6). All drawings include numbered callouts from 1 to 18, corresponding to the parts listed in the table below.

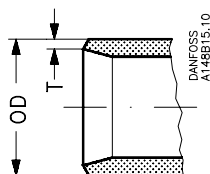
| No. | Part | Material | DIN/EN | ISO | ASTM |
|-----|---|-----------------------|-----------------------|---------------------|-------------------|
| 1 | Housing DN 50-65 | Steel | P285 QH EN 10222-4 | | LF2A350 |
| | Housing DN 80-125 | Steel | G20Mn5 QT SEW 685 | | LCC, A352 |
| 2 | Gasket | Fiber, Non-asbestos | | | |
| 3 | SCA-X: Valve bonnet CHV-X: End cover | Steel | P285 QH EN 10222-4 | | LF2A350 |
| 4 | Bolts | Stainless steel | A2-70 | A2-70 | A-276 |
| 5 | Tube | Steel | | | |
| 6 | Seat | Steel | | | |
| 7 | Valve plate | Steel | | | |
| 8 | Guide sleeve | Steel | | | |
| 9 | Spring ring | Steel | | | |
| 10 | Spring | Steel | | | |
| 11 | O-ring | Cloroprene (Neoprene) | | | |
| 12 | Teflon ring | Teflon (PTFE) | | | |
| 13 | Soft back seal | Teflon (PTFE) | | | |
| 14 | Spindle DN 50-65 | Stainless steel | X8CrNiS18-9 17440 | Type 17 R 683/13 | AISI 303 |
| | Spindle DN 80-125 | Stainless steel | X5CrNi1810 17440 | Type 11 683/13 | AISI 304 A-276 |
| 15 | Packing gland | Steel | 9Mn28, 1651 | Type 2, R 683/9 | 1213, SAE J403 |
| 16 | Spindle seal cap and gasket | Aluminium | | | |
| 17 | Marking label | Stainless steel | | | |
| 18 | Eye bolt DIN 580 | Steel | | | |

Data sheet | Check & stop valve, type SCA-X - Check valve, type CHV-X

Connections

| Size mm | Size in. | OD mm | T mm | OD in. | T in. | | | k_v Angleway m ³ /h | C_v Angleway USgal/min | K_v Straightway m ³ /h | C_v Straightway USgal/min |
|---------|----------|-------|------|--------|-------|--|--|--|--------------------------------|---|-----------------------------------|
|---------|----------|-------|------|--------|-------|--|--|--|--------------------------------|---|-----------------------------------|

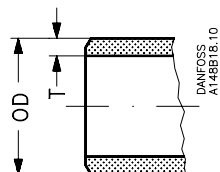
DIN



Butt-weld DIN (EN 10220)

| | | | | | | | | | | | |
|-----|-------|-------|-----|-------|-------|--|--|-----|------|-----|------|
| 15 | 1/2 | 21.3 | 2.3 | 0.839 | 0.091 | | | 8 | 9.3 | 4 | 4.6 |
| 20 | 3/4 | 26.9 | 2.3 | 1.059 | 0.091 | | | 10 | 11.6 | 7 | 8.1 |
| 25 | 1 | 33.7 | 2.6 | 1.327 | 0.102 | | | 24 | 27.8 | 16 | 18.6 |
| 32 | 1 1/4 | 42.4 | 2.6 | 1.669 | 0.102 | | | 30 | 34.8 | 21 | 24.4 |
| 40 | 1 1/2 | 48.3 | 2.6 | 1.902 | 0.102 | | | 30 | 34.8 | 21 | 24.4 |
| 50 | 2 | 60.3 | 2.9 | 2.37 | 0.11 | | | 45 | 53 | 28 | 34 |
| 65 | 2 1/2 | 76.1 | 2.9 | 3.00 | 0.11 | | | 72 | 85 | 41 | 48 |
| 80 | 3 | 88.9 | 3.2 | 3.50 | 0.13 | | | 103 | 129 | 81 | 94 |
| 100 | 4 | 114.3 | 3.6 | 4.50 | 0.14 | | | 196 | 232 | 157 | 182 |
| 125 | 5 | 139.7 | 4.0 | 5.50 | 0.16 | | | 301 | 356 | 250 | 290 |

ANSI



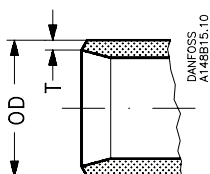
Butt-weld ANSI (B 36.10 Schedule 80)

| | | | | | | | | | | | |
|----|-------|------|-----|-------|-------|--|--|----|------|----|------|
| 15 | 1/2 | 21.3 | 3.7 | 0.839 | 0.146 | | | 8 | 9.3 | 4 | 4.6 |
| 20 | 3/4 | 26.9 | 4.0 | 1.059 | 0.158 | | | 10 | 11.6 | 7 | 8.1 |
| 25 | 1 | 33.7 | 4.6 | 1.327 | 0.181 | | | 24 | 27.8 | 16 | 18.6 |
| 32 | 1 1/4 | 42.4 | 4.9 | 1.669 | 0.193 | | | 30 | 34.8 | 21 | 24.4 |
| 40 | 1 1/2 | 48.3 | 5.1 | 1.902 | 0.201 | | | 30 | 34.8 | 21 | 24.4 |

Butt-weld ANSI (B 36.10 Schedule 40)

| | | | | | | | | | | | |
|-----|-------|-------|-----|------|------|--|--|-----|-----|-----|-----|
| 50 | 2 | 60.3 | 3.9 | 2.37 | 0.15 | | | 45 | 53 | 28 | 34 |
| 65 | 2 1/2 | 73.0 | 5.2 | 2.87 | 0.20 | | | 72 | 85 | 41 | 48 |
| 80 | 3 | 88.9 | 5.5 | 3.50 | 0.22 | | | 103 | 129 | 81 | 94 |
| 100 | 4 | 114.3 | 6.0 | 4.50 | 0.24 | | | 196 | 232 | 157 | 182 |
| 125 | 5 | 141.3 | 6.6 | 5.56 | 0.26 | | | 301 | 356 | 250 | 290 |

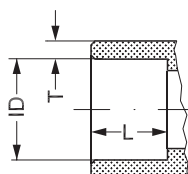
GOST



Butt-weld GOST (8734-75 and 8732-78)

| | | | | | | | | | | | |
|-----|-------|------|-----|-------|-------|--|--|-----|------|-----|------|
| 15 | 1/2 | 18 | 2 | 0.709 | 0.079 | | | 8 | 9.3 | 4 | 4.6 |
| 20 | 3/4 | 25 | 2.5 | 0.984 | 0.098 | | | 10 | 11.6 | 7 | 8.1 |
| 25 | 1 | 32 | 3 | 1.260 | 0.118 | | | 24 | 28.8 | 16 | 18.6 |
| 32 | 1 1/4 | 38 | 3 | 1.496 | 0.118 | | | 30 | 49.4 | 21 | 24.4 |
| 40 | 1 1/2 | 45 | 3 | 1.772 | 0.118 | | | 30 | 52.4 | 21 | 24.4 |
| 50 | 2 | 57 | 3.5 | 2.244 | 0.138 | | | 45 | 53 | 28 | 34 |
| 65 | 2 1/2 | 76.1 | 2.9 | 3 | 0.11 | | | 72 | 85 | 41 | 48 |
| 80 | 3 | 88.9 | 3.2 | 3.50 | 0.13 | | | 103 | 129 | 81 | 94 |
| 100 | 4 | 108 | 4 | 4.252 | 0.157 | | | 196 | 232 | 157 | 182 |
| 125 | 5 | 133 | 4 | 5.236 | 0.157 | | | 301 | 356 | 250 | 290 |

SOC



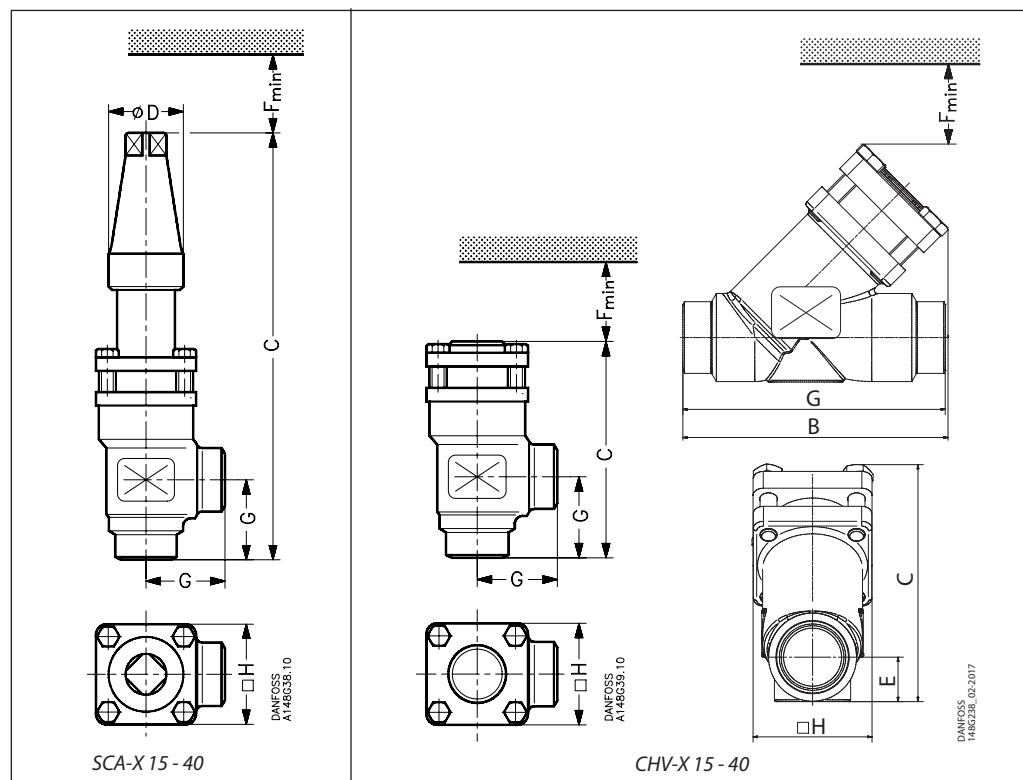
| Size mm | Size in. | ID mm | T mm | ID in. | T in. | L mm | L in. | | | | |
|---------|----------|-------|------|--------|-------|------|-------|--|--|--|--|
|---------|----------|-------|------|--------|-------|------|-------|--|--|--|--|

Socket welding ANSI (B 16.11)

| | | | | | | | | | | | |
|----|-------|------|-----|-------|-------|----|------|--|--|--|--|
| 15 | 1/2 | 21.8 | 6 | 0.858 | 0.235 | 10 | 0.39 | | | | |
| 20 | 3/4 | 27.2 | 4.6 | 1.071 | 0.181 | 13 | 0.51 | | | | |
| 25 | 1 | 33.9 | 7.2 | 1.335 | 0.284 | 13 | 0.51 | | | | |
| 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 | | | | |
| 50 | 2 | 61.2 | 6.2 | 2.41 | 0.24 | 16 | 0.63 | | | | |

Dimensions and weights

SCA-X/CHV-X 15 - 40 (½- 1½ in.)



| Valve size | | C | G | ØD | F _{min} | □H | Weight |
|------------|--|---|---|----|------------------|----|--------|
|------------|--|---|---|----|------------------|----|--------|

SCA-X 15 - 40

| | | | | | | | |
|-------------------|-----------|--------------|------------|------------|------------|------------|-------------------|
| SCA-X 15 (½ in.) | mm in. | 212 8.35 | 45 1.77 | 38 1.50 | 60 2.36 | 60 2.36 | 1.6 kg 3.53 lb |
| SCA-X 20 (¾ in.) | mm in. | 212 8.35 | 45 1.77 | 38 1.50 | 60 2.36 | 60 2.36 | 1.6 kg 3.53 lb |
| SCA-X 25 (1 in.) | mm in. | 295 11.61 | 55 2.17 | 50 1.97 | 85 3.35 | 70 2.76 | 3.2 kg 7.05 lb |
| SCA-X 32 (1¼ in.) | mm in. | 295 11.61 | 55 2.17 | 50 1.97 | 85 3.35 | 70 2.76 | 3.2 kg 7.05 lb |
| SCA-X 40 (1½ in.) | mm in. | 295 11.61 | 55 2.17 | 50 1.97 | 85 3.35 | 70 2.76 | 3.2 kg 7.05 lb |

CHV-X 15 - 40 Angleway

| | | | | | | | |
|-------------------|-----------|-------------|------------|--|------------|------------|-------------------|
| CHV-X 15 (½ in.) | mm in. | 103 4.06 | 45 1.77 | | 60 2.36 | 60 2.36 | 1.2 kg 2.65 lb |
| CHV-X 20 (¾ in.) | mm in. | 103 4.06 | 45 1.77 | | 60 2.36 | 60 2.36 | 1.2 kg 2.65 lb |
| CHV-X 25 (1 in.) | mm in. | 143 5.63 | 55 2.17 | | 85 3.35 | 70 2.76 | 2.3 kg 5.07 lb |
| CHV-X 32 (1¼ in.) | mm in. | 143 5.63 | 55 2.17 | | 85 3.35 | 70 2.76 | 2.3 kg 5.07 lb |
| CHV-X 40 (1½ in.) | mm in. | 143 5.63 | 55 2.17 | | 85 3.35 | 70 2.76 | 2.3 kg 5.07 lb |

| Valve size | | C | B | E | G | F _{min} | □H | Weight |
|------------|--|---|---|---|---|------------------|----|--------|
|------------|--|---|---|---|---|------------------|----|--------|

CHV-X 15 - 40 Straightway

| | | | | | | | | |
|-------------------|-----------|-------------|-------------|------------|-------------|------------|------------|-----------------|
| CHV-X 15 (½ in.) | mm in. | 99 3.90 | 114 4.49 | 19 0.75 | 120 4.72 | 60 2.36 | 60 2.36 | 1.3kg 2.87lb |
| CHV-X 20 (¾ in.) | mm in. | 99 3.90 | 114 4.49 | 19 0.75 | 120 4.72 | 60 2.36 | 60 2.36 | 1.3kg 2.87lb |
| CHV-X 25 (1 in.) | mm in. | 141 5.55 | 157 6.18 | 26 1.02 | 155 6.10 | 85 3.35 | 70 2.76 | 2.6kg 5.73lb |
| CHV-X 32 (1¼ in.) | mm in. | 141 5.55 | 157 6.18 | 26 1.02 | 155 6.10 | 85 3.35 | 70 2.76 | 2.6kg 5.73lb |
| CHV-X 40 (1½ in.) | mm in. | 141 5.55 | 157 6.18 | 26 1.02 | 155 6.10 | 85 3.35 | 70 2.76 | 2.6kg 5.73lb |

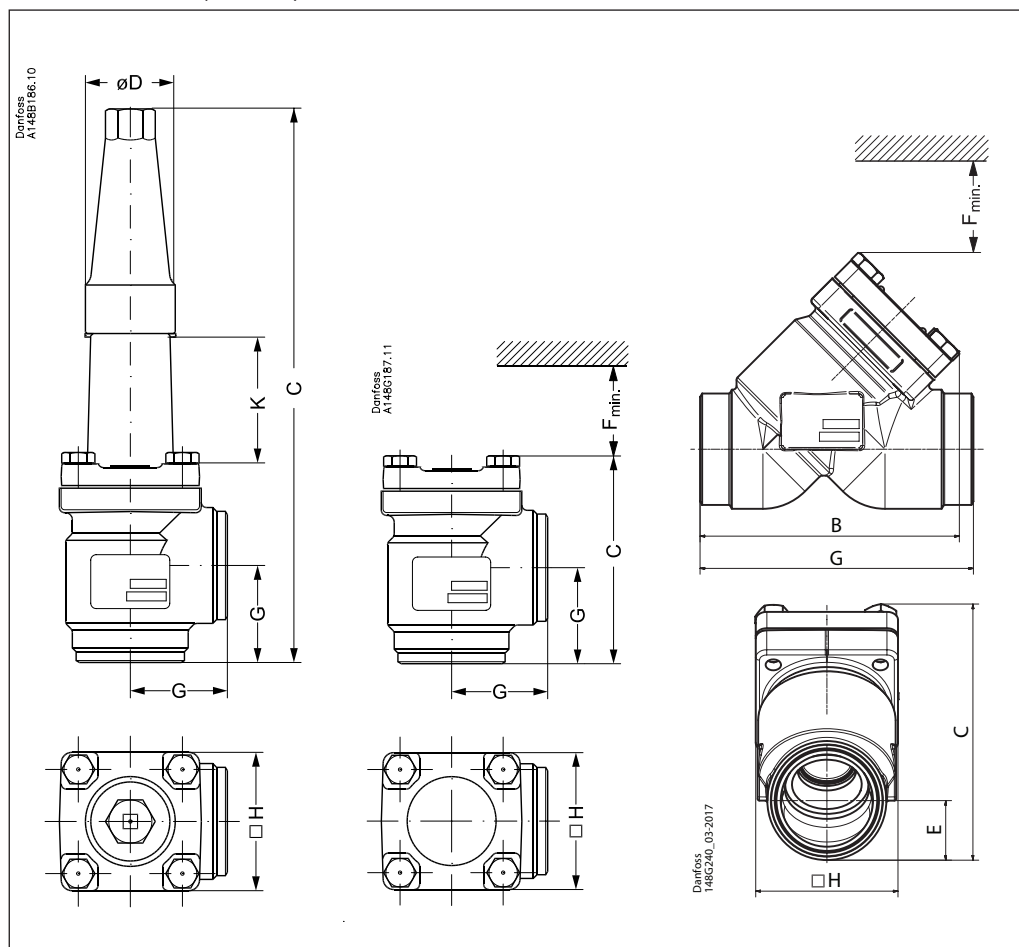
CHV-X 32-40 Straightway, Socket weld

| | | | | | | | | |
|---------------------------|-----------|-------------|-------------|------------|-------------|------------|------------|-----------------|
| CHV-X 32-40 (1¼ - 1½ in.) | mm in. | 132 5.20 | 156 6.14 | 26 1.02 | 155 6.10 | 85 3.35 | 70 2.76 | 2.8kg 6.11lb |
|---------------------------|-----------|-------------|-------------|------------|-------------|------------|------------|-----------------|

Specified weights are approximate values only.

Dimensions and weights

SCA-X/CHV-X 50 - 65 (2 - 2½ in.)



| Valve size | K | C | G | ØD | □H | Weight |
|------------|---|---|---|----|----|--------|
|------------|---|---|---|----|----|--------|

SCA-X

| | | | | | | | |
|------------|-----|------|-------|------|------|------|----------|
| SCA-X 50 | mm | 70 | 315 | 60 | 50 | 77 | 3.8 kg |
| SCA-X (2) | in. | 2.76 | 12.40 | 2.36 | 1.97 | 3.03 | 8.40 lb |
| SCA-X 65 | mm | 70 | 335 | 70 | 50 | 90 | 5.5 kg |
| SCA-X (2½) | in. | 2.76 | 13.19 | 2.76 | 1.97 | 3.54 | 12.16 lb |

| Valve size | C | G | F _{min.} | □H | Weight |
|------------|---|---|-------------------|----|--------|
|------------|---|---|-------------------|----|--------|

CHV-X Angleway

| | | | | | | |
|------------|-----|------|------|------|------|---------|
| CHV-X 50 | mm | 132 | 60 | 92 | 77 | 3.2 kg |
| CHV-X (2) | in. | 5.20 | 2.36 | 3.62 | 3.03 | 7.10 lb |
| CHV-X 65 | mm | 152 | 70 | 107 | 90 | 4.5 kg |
| CHV-X (2½) | in. | 5.98 | 2.76 | 4.21 | 3.54 | 9.95 lb |

| Valve size | C | B | E | G | F _{min.} | □H | Weight |
|------------|---|---|---|---|-------------------|----|--------|
|------------|---|---|---|---|-------------------|----|--------|

CHV-X Straightway

| | | | | | | | | |
|------------|-----|------|------|------|------|------|------|---------|
| CHV-X 50 | mm | 139 | 140 | 32 | 148 | 92 | 77 | 3 kg |
| CHV-X (2) | in. | 5.47 | 5.51 | 1.26 | 5.83 | 3.62 | 3.03 | 6.72 lb |
| CHV-X 65 | mm | 163 | 164 | 40 | 176 | 107 | 90 | 4.3 kg |
| CHV-X (2½) | in. | 6.4 | 6.4 | 1.6 | 6.9 | 4.21 | 3.54 | 9.44 lb |

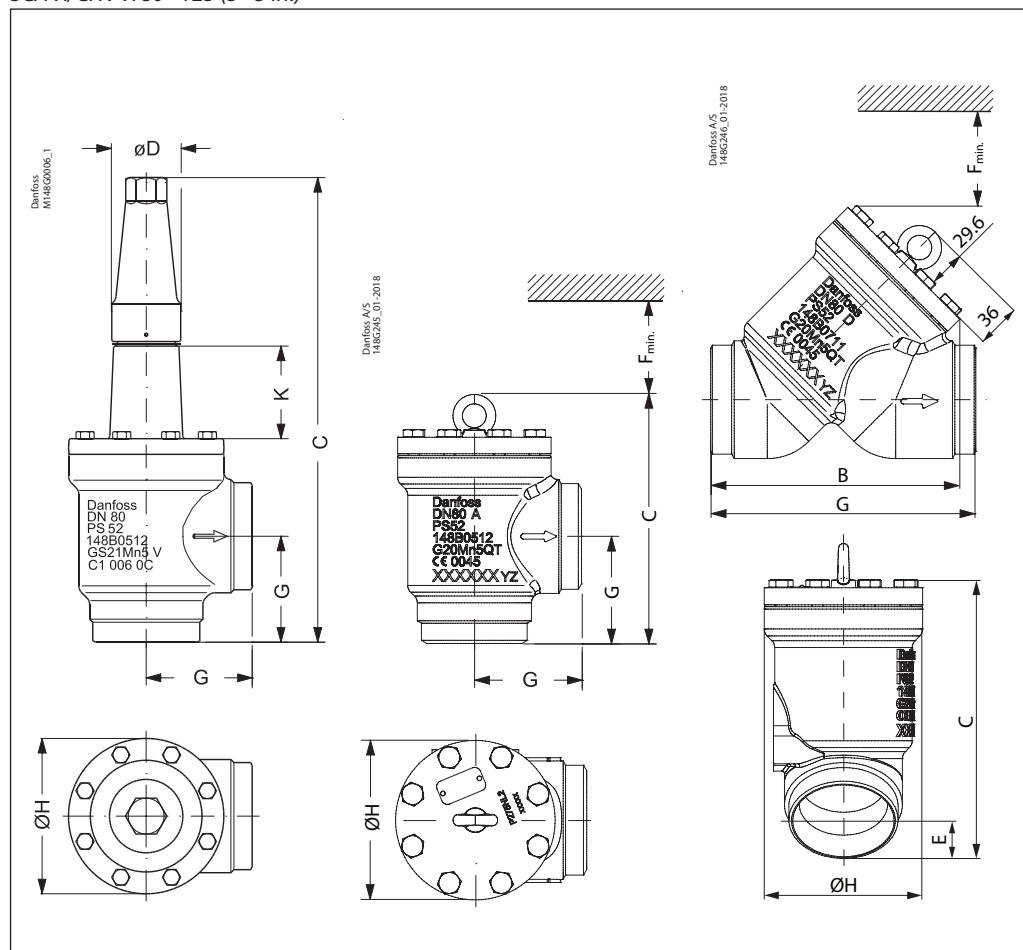
CHV-X Straightway, Socket weld

| | | | | | | | | |
|-----------|-----|------|------|------|------|------|------|---------|
| CHV-X 50 | mm | 142 | 147 | 37 | 162 | 92 | 77 | 3.8 kg |
| CHV-X (2) | in. | 5.59 | 5.79 | 1.46 | 6.38 | 3.62 | 3.03 | 8.33 lb |

Specified weights are approximate values only.

Dimensions and weights

SCA-X/CHV-X 80 - 125 (3 - 5 in.)



| Valve size | K | C | G | ØD | ØH | Weight |
|------------|---|---|---|----|----|--------|
|------------|---|---|---|----|----|--------|

SCA-X

| | | | | | | | |
|-----------|-----|------|-------|------|------|------|---------|
| SCA-X 80 | mm | 76 | 388 | 90 | 58 | 129 | 9.7 kg |
| SCA-X (3) | in. | 3.00 | 15.28 | 3.54 | 2.28 | 5.08 | 21.4 lb |
| SCA-X 100 | mm | 90 | 437 | 106 | 58 | 156 | 15.3 kg |
| SCA-X (4) | in. | 3.54 | 17.20 | 4.17 | 2.28 | 6.14 | 33.7 lb |
| SCA-X 125 | mm | 90 | 533 | 128 | 74 | 193 | 28.1 kg |
| SCA-X (5) | in. | 3.54 | 20.98 | 5.04 | 2.91 | 7.60 | 61.9 lb |

| Valve size | C | G | F _{min.} | ØH | Weight |
|------------|---|---|-------------------|----|--------|
|------------|---|---|-------------------|----|--------|

CHV-X Angleway

| | | | | | | |
|-----------|-----|-------|------|-------|------|----------|
| CHV-X 80 | mm | 218.6 | 90 | 103.4 | 129 | 8.7 kg |
| CHV-X (3) | in. | 8.61 | 3.54 | 4.07 | 5.08 | 19.23 lb |
| CHV-X 100 | mm | 252.6 | 106 | 133.4 | 156 | 14.3 kg |
| CHV-X (4) | in. | 9.94 | 4.17 | 5.25 | 6.14 | 31.60 lb |
| CHV-X 125 | mm | 297.6 | 128 | 160.4 | 193 | 25.6 kg |
| CHV-X (5) | in. | 11.72 | 5.04 | 6.31 | 7.60 | 56.58 lb |

| Valve size | C | B | E | G | F _{min.} | ØH | Weight |
|------------|---|---|---|---|-------------------|----|--------|
|------------|---|---|---|---|-------------------|----|--------|

CHV-X Straightway

| | | | | | | | | |
|-----------|-----|-------|-------|------|-------|------|------|----------|
| CHV-X 80 | mm | 206 | 204 | 48 | 216 | 133 | 129 | 9.3 kg |
| CHV-X (3) | in. | 8.11 | 8.03 | 1.89 | 8.50 | 5.24 | 5.08 | 20.4 lb |
| CHV-X 100 | mm | 256 | 248 | 62 | 264 | 163 | 156 | 14.6 kg |
| CHV-X (4) | in. | 10.08 | 9.76 | 2.44 | 10.39 | 6.43 | 6.14 | 32.29 lb |
| CHV-X 125 | mm | 314 | 302 | 74 | 322 | 190 | 193 | 32.5 kg |
| CHV-X (5) | in. | 12.36 | 11.89 | 2.91 | 12.68 | 7.48 | 7.60 | 71.65 lb |

Specified weights are approximate values only.

Ordering complete valves

How to order

The table below is used to identify the valve required.

For further information please contact your local Danfoss Sales Company.

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range.

| Valve type | SCA-X CHV-X | Check & stop valve Check Valve | | | | |
|--|--|---|--|--|--|--|
| (valve size measured on the connection diameter) | 15 20 25 32 40 50 65 80 100 125 | DN 15 DN 20 DN 25 DN 32 DN 40 DN 50 DN 65 DN 80 DN 100 DN 125 | A x x x x x x x x x x | D x x x x x x x x x x | G x x x x x x x x x x | SOC x x x x x x x x x x |
| Connections | A D G SOC | Welding branches: ANSI B 31.5 schedule 80 DN 15 - 40 (½ - 1½ in.) Welding branches: ANSI B 31.5 schedule 40 DN 50 - 125 (2 - 5 in.) Welding branches: EN 10220 Butt-weld connection: GOST (8734-75 and 8732-78) Socket weld: ANSI B 16.11 | | | | |
| Valve housing | ANG STR | Angle flow Straight flow | | | | |

Important!

Where products need to be certified according to specific certification societies the relevant information should be included at the time of order.

Angleway

SCA-X Butt-weld DIN (EN 10220)

| Size | | Type | Code No. |
|------|-----|-----------------|-----------------|
| mm | in. | | |
| 15 | ½ | SCA-X 15 D ANG | 148B5208 |
| 20 | ¾ | SCA-X 20 D ANG | 148B5308 |
| 25 | 1 | SCA-X 25 D ANG | 148B5408 |
| 32 | 1¼ | SCA-X 32 D ANG | 148B5508 |
| 40 | 1½ | SCA-X 40 D ANG | 148B5608 |
| 50 | 2 | SCA-X 50 D ANG | 148B5702 |
| 65 | 2½ | SCA-X 65 D ANG | 148B5803 |
| 80 | 3 | SCA-X 80 D ANG | 148B5902 |
| 100 | 4 | SCA-X 100 D ANG | 148B6002 |
| 125 | 5 | SCA-X 125 D ANG | 148B6102 |

Angleway

CHV-X Butt-weld DIN (EN 10220)

| Size | | Type | Code No. |
|------|-----|-----------------|-----------------|
| mm | in. | | |
| 15 | ½ | CHV-X 15 D ANG | 148B5236 |
| 20 | ¾ | CHV-X 20 D ANG | 148B5336 |
| 25 | 1 | CHV-X 25 D ANG | 148B5436 |
| 32 | 1¼ | CHV-X 32 D ANG | 148B5536 |
| 40 | 1½ | CHV-X 40 D ANG | 148B5636 |
| 50 | 2 | CHV-X 50 D ANG | 148B5736 |
| 65 | 2½ | CHV-X 65 D ANG | 148B5838 |
| 80 | 3 | CHV-X 80 D ANG | 148B5936 |
| 100 | 4 | CHV-X 100 D ANG | 148B6036 |
| 125 | 5 | CHV-X 125 D ANG | 148B6136 |

SCA-X Butt-weld ANSI (B 36.10 Schedule 80)

| Size | | Type | Code No. |
|------|-----|----------------|-----------------|
| mm | in. | | |
| 15 | ½ | SCA-X 15 A ANG | 148B5209 |
| 20 | ¾ | SCA-X 20 A ANG | 148B5309 |
| 25 | 1 | SCA-X 25 A ANG | 148B5409 |
| 32 | 1¼ | SCA-X 32 A ANG | 148B5509 |
| 40 | 1½ | SCA-X 40 A ANG | 148B5609 |

CHV-X Butt-weld ANSI (B 36.10 Schedule 80)

| Size | | Type | Code No. |
|------|-----|----------------|-----------------|
| mm | in. | | |
| 15 | ½ | CHV-X 15 A ANG | 148B5237 |
| 20 | ¾ | CHV-X 20 A ANG | 148B5337 |
| 25 | 1 | CHV-X 25 A ANG | 148B5437 |
| 32 | 1¼ | CHV-X 32 A ANG | 148B5537 |
| 40 | 1½ | CHV-X 40 A ANG | 148B5637 |

SCA-X Butt-weld ANSI (B 36.10 Schedule 40)

| Size | | Type | Code No. |
|------|-----|-----------------|-----------------|
| mm | in. | | |
| 50 | 2 | SCA-X 50 A ANG | 148B5703 |
| 65 | 2½ | SCA-X 65 A ANG | 148B5802 |
| 80 | 3 | SCA-X 80 A ANG | 148B5903 |
| 100 | 4 | SCA-X 100 A ANG | 148B6004 |
| 125 | 5 | SCA-X 125 A ANG | 148B6103 |

CHV-X Butt-weld ANSI (B 36.10 Schedule 40)

| Size | | Type | Code No. |
|------|-----|-----------------|-----------------|
| mm | in. | | |
| 50 | 2 | CHV-X 50 A ANG | 148B5737 |
| 65 | 2½ | CHV-X 65 A ANG | 148B5837 |
| 80 | 3 | CHV-X 80 A ANG | 148B5937 |
| 100 | 4 | CHV-X 100 A ANG | 148B6037 |
| 125 | 5 | CHV-X 125 A ANG | 148B6137 |

SCA-X Socket welding ANSI (B 16.11)

| Size | | Type | Code No. |
|------|-----|------------------|-----------------|
| mm | in. | | |
| 50 | 2 | SCA-X 50 SOC ANG | 148B5704 |

CHV-X Socket welding ANSI (B 16.11)

| Size | | Type | Code No. |
|------|-----|----------------|-----------------|
| mm | in. | | |
| 32 | 1¼ | CHV 32 SOC ANG | 148B5539 |
| 50 | 2 | CHV 50 SOC ANG | 148B5740 |

ANG = Angleway

Ordering complete valves
(continued)

Straightway

CHV-X Butt-weld DIN (EN 10220)

| Size | | Type | Code No. |
|------|-----|-----------------|-----------------|
| mm | in. | | |
| 15 | ½ | CHV-X 15 D STR | 148B6581 |
| 20 | ¾ | CHV-X 20 D STR | 148B6583 |
| 25 | 1 | CHV-X 25 D STR | 148B6585 |
| 32 | 1¼ | CHV-X 32 D STR | 148B6587 |
| 40 | 1½ | CHV-X 40 D STR | 148B6589 |
| 50 | 2 | CHV-X 50 D STR | 148B6591 |
| 65 | 2½ | CHV-X 65 D STR | 148B6593 |
| 80 | 3 | CHV-X 80 D STR | 148B6595 |
| 100 | 4 | CHV-X 100 D STR | 148B6597 |
| 125 | 5 | CHV-X 125 D STR | 148B6599 |

CHV-X Butt-weld ANSI (B 36.10 Schedule 80)

| Size | | Type | Code No. |
|------|-----|----------------|-----------------|
| mm | in. | | |
| 15 | ½ | CHV-X 15 A STR | 148B6582 |
| 20 | ¾ | CHV-X 20 A STR | 148B6584 |
| 25 | 1 | CHV-X 25 A STR | 148B6586 |
| 32 | 1¼ | CHV-X 32 A STR | 148B6588 |
| 40 | 1½ | CHV-X 40 A STR | 148B6590 |

CHV-X Butt-weld ANSI (B 36.10 Schedule 40)

| Size | | Type | Code No. |
|------|-----|-----------------|-----------------|
| mm | in. | | |
| 50 | 2 | CHV-X 50 A STR | 148B6592 |
| 65 | 2½ | CHV-X 65 A STR | 148B6594 |
| 80 | 3 | CHV-X 80 A STR | 148B6596 |
| 100 | 4 | CHV-X 100 A STR | 148B6598 |
| 125 | 5 | CHV-X 125 A STR | 148B6600 |

CHV-X Socket welding ANSI (B 16.11)

| Size | | Type | Code No. |
|------|-----|------------------|-----------------|
| mm | in. | | |
| 15 | ½ | CHV-X 15 SOC STR | 148B6601 |
| 20 | ¾ | CHV-X 20 SOC STR | 148B6602 |
| 25 | 1 | CHV-X 25 SOC STR | 148B6603 |
| 32 | 1¼ | CHV-X 32 SOC STR | 148B6604 |
| 40 | 1½ | CHV-X 40 SOC STR | 148B6605 |
| 50 | 2 | CHV-X 50 SOC STR | 148B6606 |

STR = Straightway

Ordering SCA-X from the parts programme

Example
(select from
table 1 and 2)

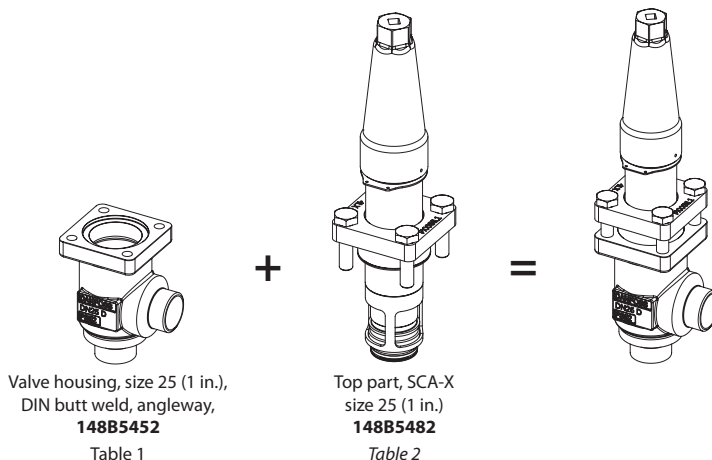
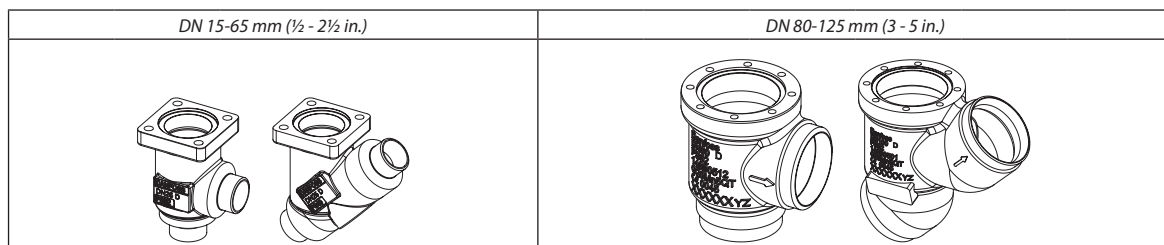
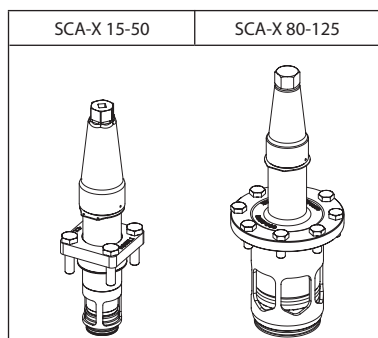


Table 1
SVL valve housings
w/different
connections



| Sizes [DN] | | Valve Housing SVL | | | | | | | | | | |
|------------|-------|-------------------|----------|----------------|----------|----------------|----------|----------|----------|----------|----------|-----|
| | | DIN-Butt weld | | ANSI-Butt weld | | GOST-Butt-weld | | SOC | | FPT | | T |
| mm | in. | ANG | STR | ANG | STR | ANG | STR | ANG | STR | ANG | STR | ANG |
| 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 | | | | | |
| 80 | 3 | 148B5912 | 148B5913 | 148B5914 | 148B5915 | 148B5912 | 148B5913 | | | | | |
| 100 | 4 | 148B6014 | 148B6015 | 148B6016 | 148B6017 | 148B6033 | 148B6034 | | | | | |
| 125 | 5 | 148B6112 | 148B6113 | 148B6114 | 148B6115 | 148B6133 | 148B6134 | | | | | |

Table 2
SCA-X complete top part
including gaskets and
bolts



| Sizes [DN] | | Complete top part |
|------------|-------|-------------------|
| mm | in. | SCA-X |
| 15 | 1/2 | 148B5282 |
| 20 | 3/4 | |
| 25 | 1 | |
| 32 | 1 1/4 | 148B5482 |
| 40 | 1 1/2 | |
| 50 | 2 | 148B5735 |
| 65 | 2 1/2 | 148B5825 |
| 80 | 3 | 148B5918 |
| 100 | 4 | 148B6019 |
| 125 | 5 | 148B6118 |

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

| Size (DN) | | O-ring kit for | |
|-----------|-------|-----------------|-----------------|
| mm | in. | R717 Heat pump | R1270 Propylene |
| 15 | 1/2 | 148B6070 | 148B6077 |
| 20 | 3/4 | | |
| 25 | 1 | 148B6071 | 148B6078 |
| 32 | 1 1/4 | | |
| 40 | 1 1/2 | | |
| 50 | 2 | 148B6072 | 148B6079 |
| 65 | 2 1/2 | 148B6073 | 148B6080 |
| 80 | 3 | 148B6074 | 148B6081 |
| 100 | 4 | 148B6075 | 148B6082 |
| 125 | 5 | 148B6076 | 148B6083 |

* Replacement kits for R717 Ammonia Heat Pump is applicable for continuous operating temperature between +100°C to 150°C (212°F to 302°F)

Ordering CHV-X from the parts programme

Example
(select from
table 1 and 2)

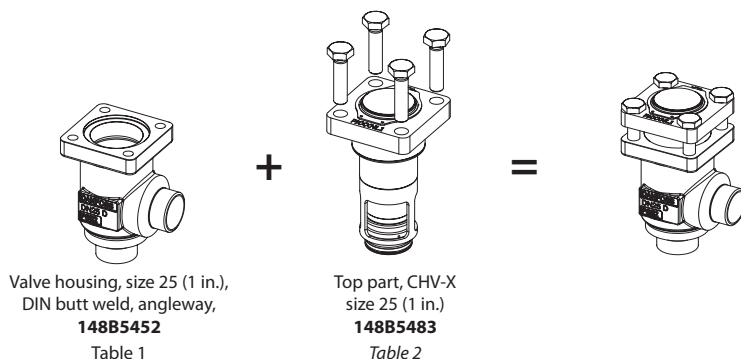


Table 1
SVL valve housings
w/different
connections

| Sizes [DN] | | DN 15-65 mm (½ - 2½ in.) | | | | | | DN 80-125 mm (3 - 5 in.) | | | | | |
|------------|-----|--------------------------|----------|----------------|----------|----------------|----------|--------------------------|----------|----------|----------|-----|--|
| | | DIN-Butt weld | | ANSI-Butt weld | | GOST-Butt-weld | | SOC | | FPT | | T | |
| mm | in. | ANG | STR | ANG | STR | ANG | STR | ANG | STR | ANG | STR | ANG | |
| 15 | ½ | 148B5252 | 148B5253 | 148B5254 | 148B5255 | 148B5391 | 148B5392 | 148B5256 | 148B5257 | 148B5258 | 148B5259 | | |
| 20 | ¾ | 148B5352 | 148B5353 | 148B5354 | 148B5355 | 148B5393 | 148B5394 | 148B5356 | 148B5357 | 148B5358 | 148B5359 | | |
| 25 | 1 | 148B5452 | 148B5453 | 148B5454 | 148B5455 | 148B5498 | 148B5499 | 148B5456 | 148B5457 | 148B5458 | 148B5459 | | |
| 32 | 1¼ | 148B5576 | 148B5577 | 148B5578 | 148B5579 | 148B5593 | 148B5594 | 148B5580 | 148B5581 | 148B5582 | 148B5583 | | |
| 40 | 1½ | 148B5652 | 148B5653 | 148B5654 | 148B5655 | 148B5681 | 148B5682 | 148B5656 | 148B5657 | | | | |
| 50 | 2 | 148B5741 | 148B5742 | 148B5743 | 148B5744 | 148B5759 | 148B5760 | 148B5745 | 148B5746 | | | | |
| 65 | 2½ | 148B5816 | 148B5817 | 148B5818 | 148B5819 | 148B5816 | 148B5817 | | | | | | |
| 80 | 3 | 148B5912 | 148B5913 | 148B5914 | 148B5915 | 148B5912 | 148B5913 | | | | | | |
| 100 | 4 | 148B6014 | 148B6015 | 148B6016 | 148B6017 | 148B6033 | 148B6034 | | | | | | |
| 125 | 5 | 148B6112 | 148B6113 | 148B6114 | 148B6115 | 148B6133 | 148B6134 | | | | | | |

Table 2
CHV-X complete top part
including gaskets and
bolts

| Sizes [DN] | | CHV-X 15-50 | CHV-X 80-125 |
|------------|-----|----------------------------|--------------|
| mm | in. | Complete top part CHV-X | |
| 15 | ½ | 148B5283 | |
| 20 | ¾ | 148B5283 | |
| 25 | 1 | 148B5483 | |
| 32 | 1¼ | 148B5483 | |
| 40 | 1½ | 148B5483 | |
| 50 | 2 | 148B5747 | |
| 65 | 2½ | 148B5827 | |
| 80 | 3 | 148B5919 | |
| 100 | 4 | 148B6022 | |
| 125 | 5 | 148B6119 | |

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

| Size (DN) | | O-ring kit for | |
|-----------|-----|----------------|-----------------|
| mm | in. | R717 Heat pump | R1270 Propylene |
| 15 | ½ | 148B6070 | 148B6077 |
| 20 | ¾ | | |
| 25 | 1 | 148B6071 | 148B6078 |
| 32 | 1¼ | | |
| 40 | 1½ | 148B6072 | 148B6079 |
| 50 | 2 | | |
| 65 | 2½ | 148B6073 | 148B6080 |
| 80 | 3 | 148B6074 | 148B6081 |
| 100 | 4 | 148B6075 | 148B6082 |
| 125 | 5 | 148B6076 | 148B6083 |

* Replacement kits for R717 Ammonia Heat Pump is applicable for continuous operating temperature between +100°C to 150°C (212°F to 302°F)

ENGINEERING
TOMORROW

