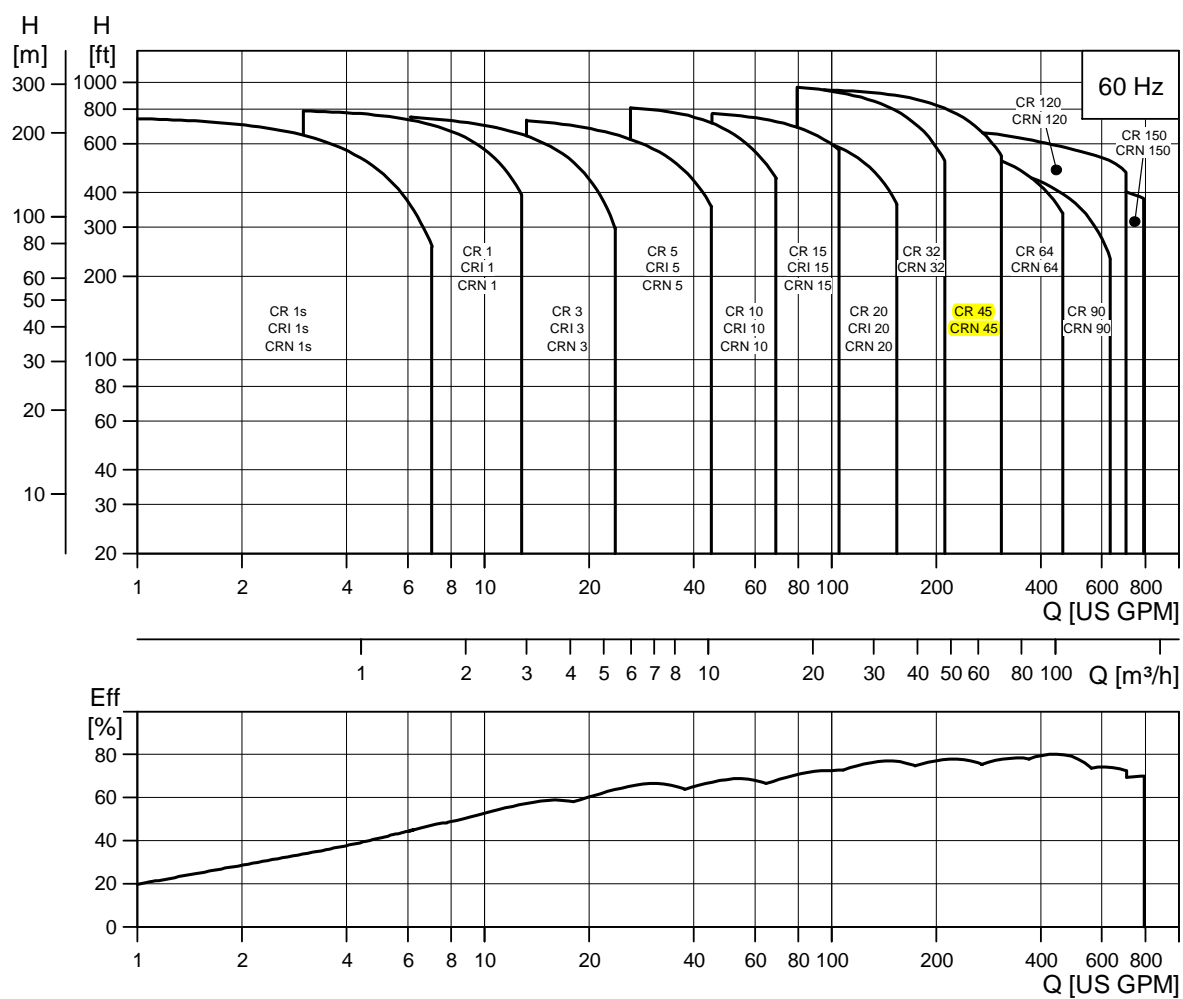


3. Performance range



TM02 5518 0209

| Range | CR 32 | CR 45 | CR 64 | CR 90 | CR 120 | CR 150 |
|---|---------------------------|-----------------|------------------|------------------|--------------------------------|------------------|
| Nominal flow rate [US gpm] | 140 | 220 | 340 | 440 | 610 | 750 |
| Temperature range [°F] | -22 to +250 ¹⁾ | | | | -22 to +250 ¹⁾ & 2) | |
| Temperature range [°F] – on request | -40 to +356 | | | | - | - |
| Max. working pressure [psi] ★ | 435 | 435 | 435 | 435 | 435 | 435 |
| Max. working pressure [psi] – on request | 580 | 580 | 580 | 580 | - | - |
| Max. pump efficiency [%] | 76 | 78 | 79 | 80 | 75 | 73 |
| CR pumps | | | | | | |
| CR: Flow range [US gpm] | 14-210 | 22-310 | 34-450 | 44-630 | 61-700 | 75-790 |
| CR: Max. pump pressure (H [ft]) | 995 | 940 | 565 | 595 | 685 | 570 |
| CR: Motor power [Hp] | 5-50 | 7.5-60 | 10-60 | 15-60 | 20-100 | 25-100 |
| Version | | | | | | |
| CR: Cast iron and stainless steel AISI 304 | • | • | • | • | • | • |
| CRI: Stainless steel AISI 304 | - | - | - | - | - | - |
| CRN: Stainless steel AISI 316 | • | • | • | • | • | • |
| CRT, CRTE: Titanium | - | - | - | - | - | - |
| CR pipe connection | | | | | | |
| Oval flange (NPT) | - | - | - | - | - | - |
| Oval flange (NPT) - on request | - | - | - | - | - | - |
| ANSI flange size | 2.5" | 3" | 4" | 4" | 5" ³⁾ | 5" ³⁾ |
| ANSI flange size - on request | 3" | 4" | 5" ³⁾ | 5" ³⁾ | 6" | 6" |
| ANSI flange class | 125/ 250 lb. | 125/ 250 lb. | 125/ 250 lb. | 125/ 250 lb. | 125/ 250 lb. | 125/ 250 lb. |
| CRI pipe connection | | | | | | |
| Oval flange (NPT) | - | - | - | - | - | - |
| Oval flange (NPT) - on request | - | - | - | - | - | - |
| ANSI flange size | - | - | - | - | - | - |
| ANSI flange class | - | - | - | - | - | - |
| Clamp coupling (NPT) - on request | - | - | - | - | - | - |
| Union (NPT ext. Thread) - on request | - | - | - | - | - | - |
| CRN pipe connection | | | | | | |
| PJE (Victaulic) | - | - | - | - | - | - |
| PJE (Victaulic) - on request | 3" | 4" | 4" | 4" | 4" | 4" |
| ANSI flange size | 2.5" | 3" | 4" | 4" | 5" | 5" |
| ANSI flange size - on request | 3" | - | - | 5" | 6" | 6" |
| ANSI flange class | 150/ 300 lb. | 150/ 300 lb. | 150/ 300 lb. | 150/ 300 lb. | 150/ 300 lb. | 150/ 300 lb. |
| Clamp coupling (NPT) - on request | - | - | - | - | - | - |
| Union (NPT ext. Thread) - on request | - | - | - | - | - | - |
| CRT pipe connection | | | | | | |
| PJE coupling (Vitalic) | - | - | - | - | - | - |
| ANSI flange size - on request | - | - | - | - | - | - |

- Available.

★ See section 7. [Operating conditions](#) on page 13 for specific working pressures.

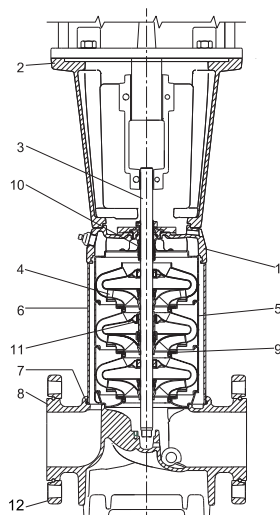
¹⁾ CRN 32 to CRN 90 with HQQE shaft seal: -40 °F to +250 °F.

²⁾ CR, CRN 120 and 150 with 75 or 100 Hp motors with HBQE shaft seal: 0 °F to +250 °F.

³⁾ CR 5" flange is not manufactured to ANSI specification. Gasket contact surface is approximately 0.25". CR 6" ANSI flange adapter is manufactured to ANSI B16.5 specification.

CR 32, 45, 64 and 90

TM01 2150 1298

Sectional drawing

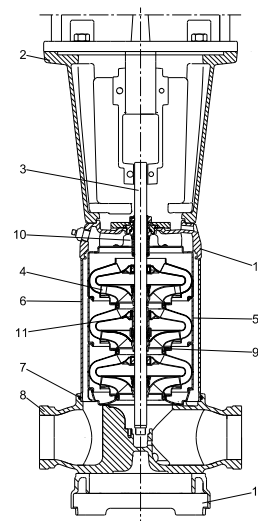
TM06 0691 0714

Materials: CR

| Pos. | Designation | Materials | AISI/ASTM |
|------|-------------------|--------------------------------|---------------|
| 1 | Pump head | Cast iron EN-GJS-500-7 | ASTM 80-55-06 |
| 2 | Motor stool | Cast iron EN-GJL-200 | ASTM 25B |
| 3 | Shaft | Stainless steel | AISI 431 |
| 4 | Impeller | Stainless steel | AISI 304 |
| 5 | Chamber | Stainless steel | AISI 304 |
| 6 | Sleeve | Stainless steel | AISI 304 |
| 7 | O-ring for sleeve | EPDM or FKM | |
| 8 | Base | Cast iron EN-GJS-500-7 | ASTM 80-55-06 |
| 9 | Neck ring | Carbon-graphite-filled PTFE | |
| 10 | Shaft seal | | |
| 11 | Bearing ring | SiC/SiC | |
| 12 | Flange ring | Ductile iron | A 65-45-12 |
| | Rubber parts | EPDM or FKM | |

CRN 32, 45, 64 and 90

TM02 7399 3403

Sectional drawing

TM01 1837 3713

Materials: CRN

| Pos. | Designation | Materials | AISI/ASTM |
|------|-------------------|---|----------------------------|
| 1 | Pump head | Stainless steel | CF 8M equal to AISI 316 |
| 2 | Motor stool | Cast iron EN-GJL-200 ¹⁾ | ASTM 25B |
| 3 | Shaft | Stainless steel | |
| 4 | Impeller | Stainless steel | AISI 316 |
| 5 | Chamber | Stainless steel | AISI 316 |
| 6 | Sleeve | Stainless steel | AISI 316 |
| 7 | O-ring for sleeve | EPDM or FKM | |
| 8 | Base | Stainless steel | CF 8M equal to AISI 316 |
| 9 | Neck ring | Carbon-graphite-filled PTFE | |
| 10 | Shaft seal | | |
| 11 | Bearing ring | SiC/SiC | |
| 12 | Base plate | Cast iron EN-GJS-500-7 ¹⁾ | ASTM 88-55-06 |
| | Flange ring | Ductile iron ¹⁾ | A 65-45-12 |
| | Rubber parts | EPDM or FKM | |

¹⁾ Stainless steel available on request.

| Pumped liquid | Note | Liquid concentration, liquid temperature | CR | | CRN | |
|---|------------|---|----------------------------|-----------------------------|----------------------------|-----------------------------|
| | | | 1s, 1, 3, 5, 10, 15, 20 | 32, 45, 64, 90, 120, 150 | 1s, 1, 3, 5, 10, 15, 20 | 32, 45, 64, 90, 120, 150 |
| Acetic acid CH_3COOH | | 5 %, 68 °F | | | HQQE | HQQE/HBQE |
| Acetone CH_3COCH_3 | 1, F | 100 %, 68 °F | | | HBQE | HQQE/HBQE |
| Alkaline degreasing agent | D, F | | HQQE | HQQE/HBQE | | |
| Ammonium bicarbonate NH_4HCO_3 | E | 20 %, 86 °F | | | HQQE | HQQE/HBQE |
| Ammonium hydroxide NH_4OH | | 20 %, 104 °F | HQQE | HQQE/HBQE | | |
| Aviation fuel | 1, 3, 4, F | 100 %, 68 °F | HQB | HQQV/HBQV | | |
| Benzoic acid $\text{C}_6\text{H}_5\text{COOH}$ | H | 0,5 %, 68 °F | | | HQQV | HQQV/HBQV |
| Boiler water | | < 248 °F | HQQE | HQQE/HBQE | | |
| | F | 248 °F - 356 °F | - | - | | |
| Calcareous water | | < 194 °F | HQQE | HQQE | | |
| Calcium acetate (as coolant with inhibitor) $\text{Ca}(\text{CH}_3\text{COO})_2$ | D, E | 30 %, 122 °F | HQQE | HQQE | | |
| Calcium hydroxide $\text{Ca}(\text{OH})_2$ | E | Saturated solution, 122 °F | HQQE | HQQE | | |
| Chloride-containing water | F | < 86 °F, max. 500 ppm | | | HQQE | HQQE |
| Chromic acid H_2CrO_4 | H | 1 %, 68 °F | | | HQQV | HQQV/HBQV |
| Citric acid $\text{HOC}(\text{CH}_2\text{CO}_2\text{H})_2\text{COOH}$ | H | 5 %, 104 °F | | | HQQE | HQQE/HBQE |
| Completely desalinated water (demineralized water) | | < 248 °F | | | HQQE | HQQE/HBQE |
| Condensate | | < 194 °F | HQQE | HQQE/HBQE | | |
| Copper sulfate CuSO_4 | E | 10 %, 122 °F | | | HQQE | HQQE |
| Corn oil | D, E, 3 | 100 %, 176 °F | HQQV | HQQV/HBQV | | |
| Diesel oil | 2, 3, 4, F | 100 %, 68 °F | HQB | HQQV/HBQV | | |
| Domestic hot water (potable water) | | < 248 °F | HQQE | HQQE/HBQE | | |
| Ethanol (ethyl alcohol) $\text{C}_2\text{H}_5\text{OH}$ | 1, F | 100 %, 68 °F | HQQE | HQQE/HBQE | | |
| Ethylene glycol $\text{HOCH}_2\text{CH}_2\text{OH}$ | D, E | 50 %, 122 °F | HQQE | HQQE | | |
| Formic acid HCOOH | | 5 %, 68 °F | | | HQQE | HQQE/HBQE |
| Glycerine (glycerol) $\text{OHCH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$ | D, E | 50 %, 122 °F | HQQE | HQQE/HBQE | | |
| Hydraulic oil (mineral) | E, 2, 3 | 100 %, 212 °F | HQQV | HQQV/HBQE | | |
| Hydraulic oil (synthetic) | E, 2, 3 | 100 %, 212 °F | HQQV | HQQV/HBQE | | |
| Isopropyl alcohol $\text{CH}_3\text{CHOHCH}_3$ | 1, F | 100 %, 68 °F | HQB | HQQV/HBQV | | |
| Lactic acid $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$ | E, H | 10 %, 68 °F | | | HQQE | HQQE/HBQE |
| Linoleic acid $\text{C}_{17}\text{H}_{31}\text{COOH}$ | E, 3 | 100 %, 68 °F | HQQV | HQQV/HBQV | | |
| Methanol (methyl alcohol) CH_3OH | 1, F | 100 %, 68 °F | HQQE | HQQE/HBQE | | |
| Motor oil | E, 2, 3 | 100 %, 176 °F | HQQV | HQQV/HBQV | | |
| Naphthalene C_{10}H_8 | E, H | 100 %, 176 °F | HQQV | HQQV/HBQV | | |
| Nitric acid HNO_3 | F | 1 %, 68 °F | | | HQQE | HQQE/HBQE |
| Oil-containing water | | < 212 °F | HQQV | HQQV/HBQV | | |
| Olive oil | D, E, 3 | 100 %, 176 °F | HQQV | HQQV/HBQV | | |
| Oxalic acid $(\text{COOH})_2$ | H | 1 %, 68 °F | | | HQQE | HQQE/HBQE |
| Ozone-containing water (O_3) | | 1 PPM, < 105 °F | | | HQQE | HQQE/HBQE |
| Peanut oil | D, E, 3 | 100 %, 194 °F | HQQV | HQQV/HBQV | | |
| Petrol/gasoline | 1, 3, 4, F | 100 %, 68 °F | HQB | HQQV/HBQV | | |
| Phosphoric acid H_3PO_4 | E | 20 %, 68 °F | | | HQQV | HQQV/HBQV |
| Propanol $\text{C}_3\text{H}_7\text{OH}$ | 1, F | 100 %, 68 °F | HQQV | HQQV/HBQV | | |
| Propylene glycol $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{OH}$ | D, E | 50 %, 194 °F | HQQE | HQQE | | |
| Potassium carbonate K_2CO_3 | E | 20 %, 122 °F | HQQE | HQQE | | |
| Potassium formate (as coolant with inhibitor) KOOCH | D, E | 30 %, 122 °F | HQQE | HQQE | | |
| Potassium hydroxide KOH | E | 20 %, 122 °F | | | HQQE | HQQE |
| Potassium permanganate KmnO_4 | | 5 %, 68 °F | | | HQQE | HQQE/HBQE |
| Rape seed oil | D, E, 3 | 100 %, 176 °F | HQQV | HQQV/HBQV | | |
| Salicylic acid $\text{C}_6\text{H}_4(\text{OH})\text{COOH}$ | H | 0,1 %, 68 °F | | | HQQE | HQQE/HBQE |
| Silicone oil | E, 3 | 100 % | HQQV | HQQV/HBQV | | |
| Sodium bicarbonate NaHCO_3 | E | 10 %, 140 °F | | | HQQE | HQQE/HBQE |
| Sodium chloride (as coolant) NaCl | D, E | 30 %, < 41 °F, pH > 8 | HQQE | HQQE | | |
| Sodium hydroxide NaOH | E | 20 %, 122 °F | | | HQQE | HQQE |
| Sodium hypochlorite NaOCl | F | 0,1 %, 68 °F | | | HQQE | HQQE |
| Sodium nitrate NaNO_3 | E | 10 %, 140 °F | | | HQQE | HQQE/HBQE |

| Pumped liquid | Note | Liquid concentration, liquid temperature | CR | | CRN | |
|---|---------|--|----------------------------|-----------------------------|----------------------------|-----------------------------|
| | | | 1s, 1, 3, 5, 10, 15, 20 | 32, 45, 64, 90, 120, 150 | 1s, 1, 3, 5, 10, 15, 20 | 32, 45, 64, 90, 120, 150 |
| Sodium phosphate Na_3PO_4 | E, H | 10 %, 140 °F | | | HQQE | HQQE |
| Sodium sulfate Na_2SO_4 | E, H | 10 %, 140 °F | | | HQQE | HQQE/HBQE |
| Softened water | | < 248 °F | | | HQQE | HQQE/HBQE |
| Soybean oil | D, E, 3 | 100 %, 176 °F | HQQV | HQQV/HBQV | | |
| Sulfuric acid H_2SO_4 | F | 1 %, 68 °F | | | HQQV | HQQV/HQQV |
| Sulfurous acid H_2SO_3 | | 1 %, 68 °F | | | HQQE | HQQE/HBQE |
| Swimming pool water (low chloride) | | Max 5 ppm free chlorine (Cl_2) | HQQE | HQQE/HBQE | | |

Operating range of the shaft seal

The operating range of the shaft seal depends on operating pressure, pump type, type of shaft seal and liquid temperature. The following curves apply to clean water and water with anti-freeze liquids. For selecting the right shaft seal, see [Pumped liquids](#) on page 13.

CR 1s - CR 20

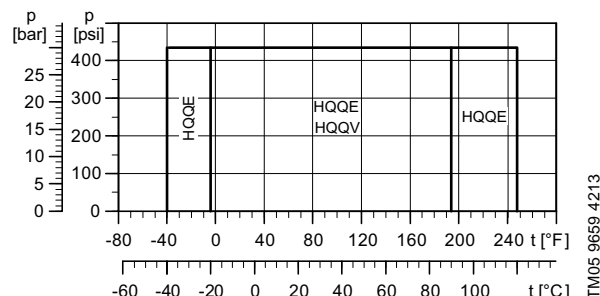


Fig. 5 Operating range of standard shaft seals for CR 1s - CR 20

CR 32 - CR 150 (3.0-60 Hp)

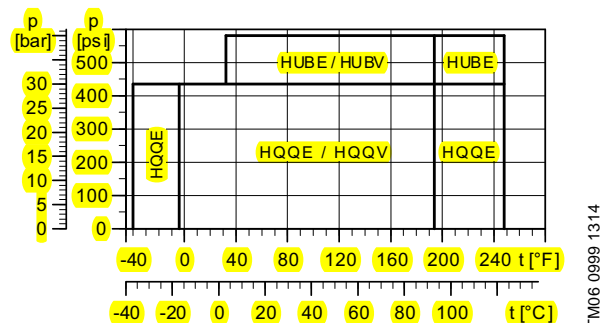


Fig. 6 Operating range of standard shaft seals for CR 32 - CR 150 (3.0-60 Hp)

CR 120 - CR 150 (75-100 Hp)

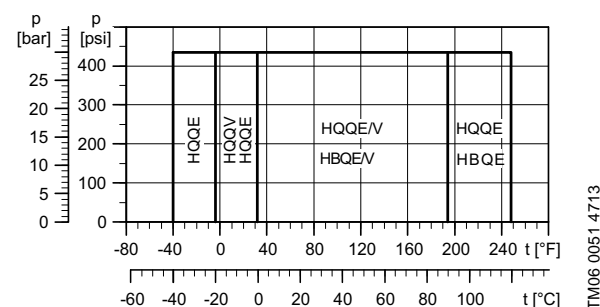


Fig. 7 Operating range of standard shaft seals for CR 120 - CR 150 (75-100 Hp)

| Shaft seal | Description | Max. temp. range [°F] |
|------------|--|-----------------------|
| HQQE | O-ring (cartridge) (balanced seal), SiC/SiC, EPDM | -40 °F to +248 °F |
| HBQE | O-ring (cartridge) (balanced seal), Carbon/SiC, EPDM | +32 °F to +248 °F |
| HBQV | O-ring (cartridge) (balanced seal), Carbon/SiC, FKM | +32 °F to +194 °F |
| HQQV | O-ring (cartridge) (balanced seal), SiC/SiC, FKM | -4 °F to +194 °F |
| HUBE | O-ring (cartridge) (balanced seal), TC/carbon, EPDM | +32 °F to +248 °F |
| HUBV | O-ring (cartridge) (balanced seal), TC/carbon, FKM | +32 °F to +194 °F |

Note: TC= tungsten carbide

See section [Lists of variants - on request](#) on page 77, in case of extreme temperatures:

- low temperatures down to -40 °F or
- high temperatures up to +356 °F.

Maximum inlet pressure

The following table shows the maximum permissible inlet pressure. However, the current inlet pressure + the pressure against a closed valve **must** always be lower than the maximum permissible operating pressure.

If the maximum permissible operating pressure is exceeded, the bearing in the motor may be damaged and the life of the shaft seal reduced.

| Pump type | Stages | | Max. [psi (bar)] |
|-----------------|------------|------------|---------------------|
| | 60 Hz | 50 Hz | |
| CR, CRI, CRN 1s | 2-27 | 2-36 | 145 (10) |
| CR, CRI, CRN 1 | 2-25 | 2-36 | 145 (10) |
| | 27 | | 217 (15) |
| CR, CRI, CRN 3 | 2-17 | 2-29 | 145 (10) |
| | 19-25 | 31-36 | 217 (15) |
| CR, CRI, CRN 5 | 2-9 | 3-16 | 145 (10) |
| | 10-24 | 18-36 | 217 (15) |
| CR, CRI, CRN 10 | 1-5 | 1-6 | 116 (8) |
| | 6-17 | 7-22 | 145 (10) |
| CR, CRI, CRN 15 | 1-2 | 1-3 | 116 (8) |
| | 3-12 | 4-17 | 145 (10) |
| CR, CRI, CRN 20 | 1 | 1-3 | 116 (8) |
| | 2-10 | 4-17 | 145 (10) |
| CR, CRN 32 | 1-1 - 2 | 1-1 - 4 | 58 (4) |
| | 3-2 - 6 | 5-2 - 10 | 145 (10) |
| | 7-2 - 11-2 | 11-14 | 217 (15) |
| CR, CRN 45 | 1-1 - 1 | 1-1 - 2 | 58 (4) |
| | 2-2 - 3 | 3-2 - 5 | 145 (10) |
| | 4-2 - 8-1 | 6-2 - 13-2 | 217 (15) |
| CR, CRN 64 | 1-1 | 1-1 - 2-2 | 58 (4) |
| | 1 - 2-1 | 2-1 - 4-2 | 145 (10) |
| | 2 - 5-2 | 4-1 - 8-1 | 217 (15) |
| CR, CRN 90 | | 1-1 - 1 | 58 (4) |
| | 1-1 - 1 | 2-2 - 3-2 | 145 (10) |
| | 2-2 - 4-1 | 3-6 | 217 (15) |
| CR, CRN 120 | 1-1 - 1 | 1 - 2-1 | 145 (10) |
| | 2-2 - 3 | 2 - 5-1 | 217 (15) |
| | 4-1 - 5-1 | 6-1 - 7 | 290 (20) |
| CR, CRN 150 | 1-1 | 1-1 - 1 | 145 (10) |
| | 1-2 | 2-1 - 4-1 | 217 (15) |
| | 3-2 - 4-1 | 5-2 - 6 | 290 (20) |

Example of operating and inlet pressures

The values for operating and inlet pressures shown in the tables must not be considered individually but must always be compared, see the following examples:

Example 1:

The following pump type has been selected: CR 3-10 A-A-A

Max. operating pressure: **232 psi**

Max. inlet pressure: **145 psi**

Discharge pressure against a closed valve: **139.2 psi**, see page 43.

This pump is not allowed to start at an inlet pressure of 145 psi, but at an inlet pressure of $232.0 - 139.2 = 92.8$ psi.

Example 2:

The following pump has been selected: CR 10-2 A-GJ-A

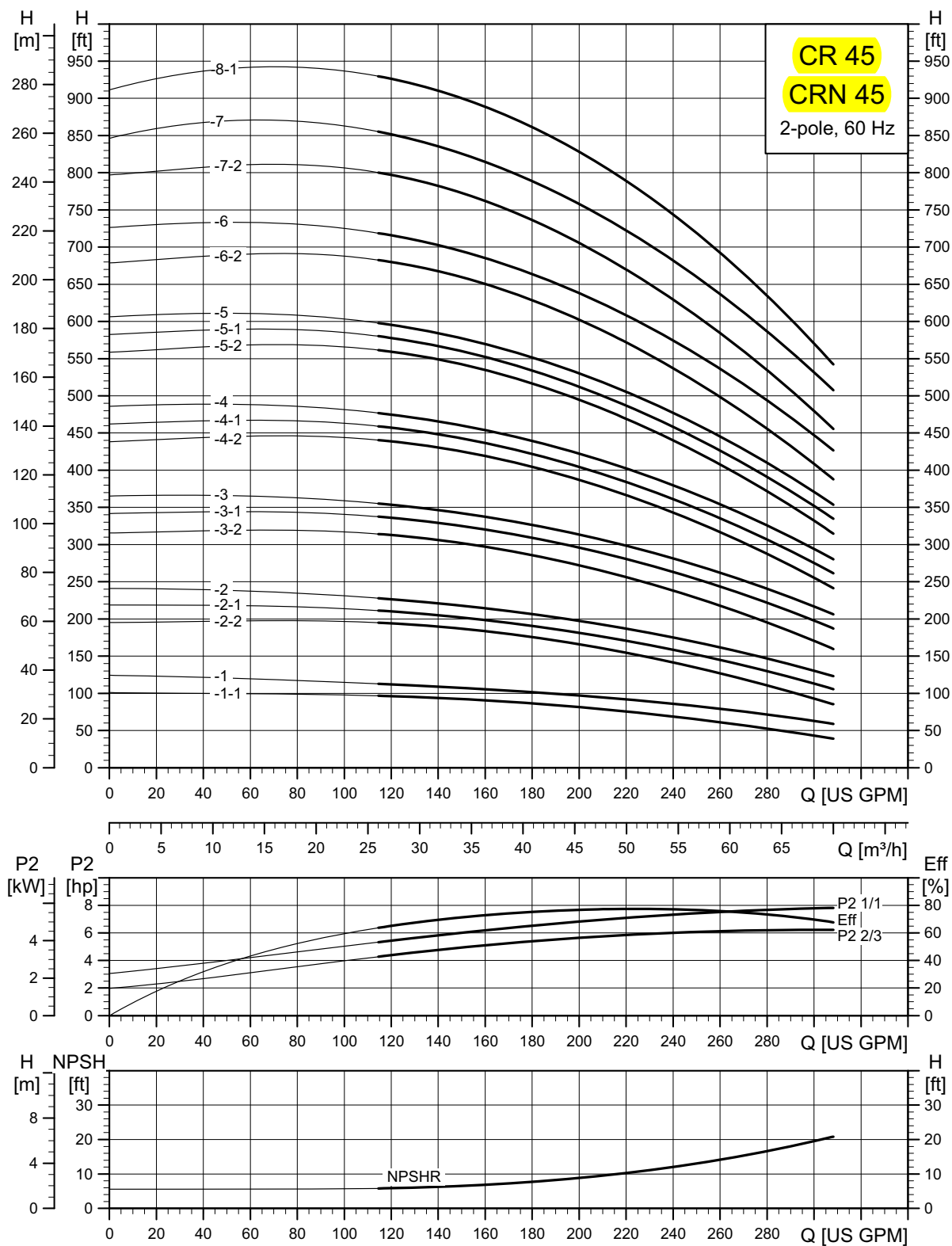
Max. operating pressure: **232 psi**

Max. inlet pressure: **116 psi**

Discharge pressure against a closed valve: **42 psi (97 ft)**, see page 49.

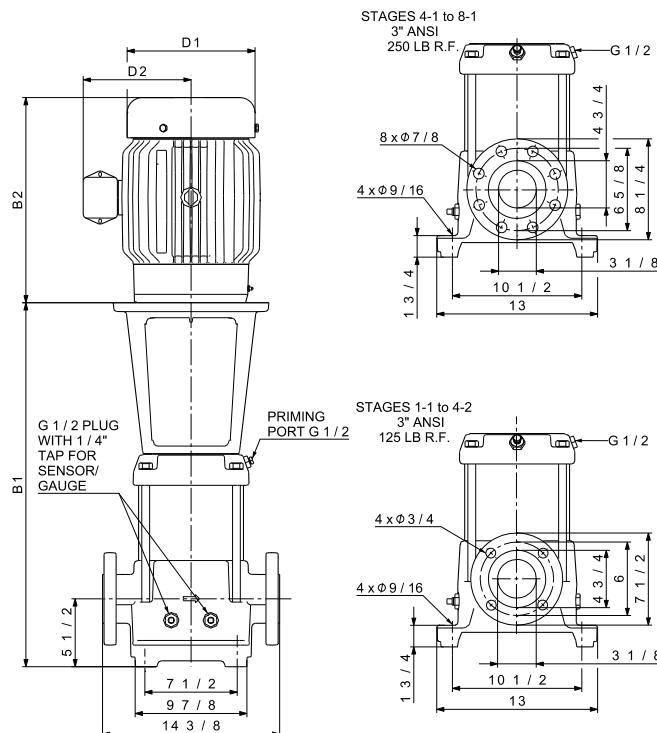
This pump is allowed to start at an inlet pressure of 116 psi, as the discharge pressure is only 42 psi, which results in an operating pressure of $116 + 42 = 158$ psi. On the contrary, the max. operating pressure of this pump is limited to 158 psi, as a higher operating pressure will require an inlet pressure of more than 116 psi.

In case the inlet or operating pressure exceeds the pressure permitted, see section [Lists of variants - on request](#) on page 77.

CR, CRN 45

TM02 0040 4713

CR 45

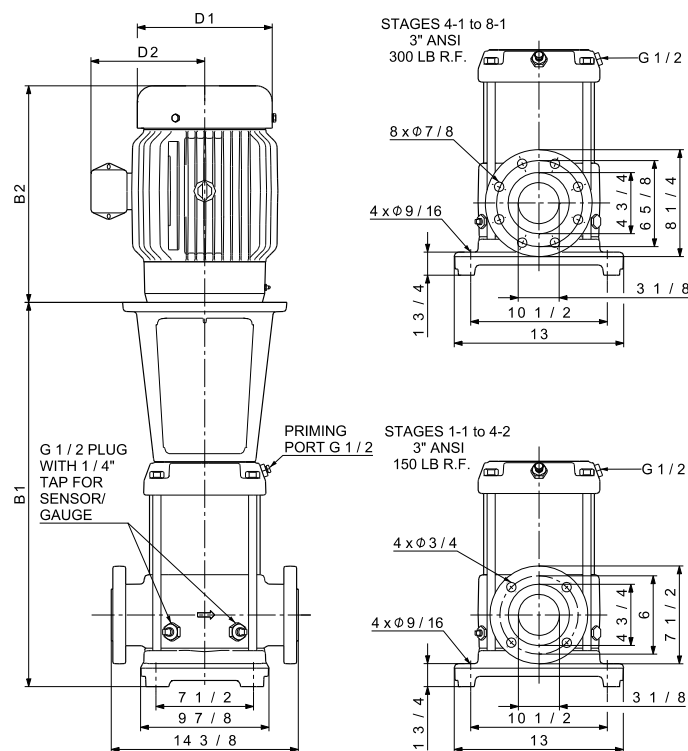


TM02 7700 1009

| Pump type | P2 [Hp] | Ph. | ANSI dimensions [inch (mm)] | | | | | | Ship. wt. ¹⁾ [lbs (kg)] | |
|-----------|------------|-----|-----------------------------|-------------|-------------|--------------|-------------|-------------|---------------------------------------|-----------|
| | | | B1 | TEFC | | | ODP | | | |
| | | | | D1 | D2 | B1+B2 | D1 | D2 | B1+B2 | |
| CR 45-1-1 | 7 1/2 | 1 | 22.20 (564) | 10.22 (260) | 7.62 (194) | 37.73 (959) | - | - | - | 259 (118) |
| | | 3 | 22.01 (560) | 8.66 (220) | 5.28 (135) | 37.52 (954) | - | - | - | 243 (111) |
| CR 45-1 | 10 | 1 | 22.20 (564) | 10.23 (260) | 10.30 (262) | 38.27 (973) | - | - | - | 314 (143) |
| | | 3 | 22.01 (560) | 10.24 (261) | 6.26 (160) | 36.74 (934) | - | - | - | 243 (111) |
| CR 45-2-2 | 15 | 3 | 29.49 (750) | 12.36 (314) | 8.00 (204) | 48.03 (1220) | 10.62 (270) | 7.33 (187) | 45.80 (1164) | 347 (158) |
| CR 45-2-1 | 15 | 3 | 29.49 (750) | 12.36 (314) | 8.00 (204) | 48.03 (1220) | 10.62 (270) | 7.33 (187) | 45.80 (1164) | 347 (158) |
| CR 45-2 | 15 | 3 | 29.49 (750) | 12.36 (314) | 8.00 (204) | 48.03 (1220) | 10.62 (270) | 7.33 (187) | 45.80 (1164) | 347 (158) |
| CR 45-3-2 | 20 | 3 | 32.64 (830) | 12.36 (314) | 8.00 (204) | 51.18 (1300) | 11.50 (293) | 8.92 (227) | 52.33 (1330) | 361 (164) |
| CR 45-3-1 | 25 | 3 | 32.64 (830) | 12.36 (314) | 8.00 (204) | 55.03 (1398) | 11.50 (293) | 8.94 (228) | 53.45 (1358) | 353 (161) |
| CR 45-3 | 25 | 3 | 32.64 (830) | 12.36 (314) | 8.00 (204) | 55.03 (1398) | 11.50 (293) | 8.94 (228) | 53.45 (1358) | 353 (161) |
| CR 45-4-2 | 30 | 3 | 35.79 (910) | 12.36 (314) | 8.00 (204) | 58.18 (1478) | 11.50 (293) | 8.94 (228) | 57.60 (1464) | 426 (194) |
| CR 45-4-1 | 30 | 3 | 35.79 (910) | 12.36 (314) | 8.00 (204) | 58.18 (1478) | 11.50 (293) | 8.94 (228) | 57.60 (1464) | 432 (196) |
| CR 45-4 | 30 | 3 | 35.79 (910) | 12.36 (314) | 8.00 (204) | 58.18 (1478) | 11.50 (293) | 8.94 (228) | 57.60 (1464) | 432 (196) |
| CR 45-5-2 | 40 | 3 | 38.94 (990) | 15.32 (390) | 13.11 (333) | 62.13 (1579) | 13.25 (337) | 12.21 (311) | 62.19 (1580) | 634 (288) |
| CR 45-5-1 | 40 | 3 | 38.94 (990) | 15.32 (390) | 13.11 (333) | 62.13 (1579) | 13.25 (337) | 12.21 (311) | 62.19 (1580) | 634 (288) |
| CR 45-5 | 40 | 3 | 38.94 (990) | 15.32 (390) | 13.11 (333) | 62.13 (1579) | 13.25 (337) | 12.21 (311) | 62.19 (1580) | 634 (288) |
| CR 45-6-2 | 50 | 3 | 42.09 (1070) | 16.88 (429) | 14.12 (359) | 69.90 (1776) | 13.25 (337) | 12.21 (311) | 64.84 (1647) | 679 (308) |
| CR 45-6 | 50 | 3 | 42.09 (1070) | 16.88 (429) | 14.12 (359) | 69.90 (1776) | 13.25 (337) | 12.21 (311) | 64.84 (1647) | 679 (308) |
| CR 45-7-2 | 50 | 3 | 45.24 (1150) | 16.88 (429) | 14.12 (359) | 73.05 (1856) | 13.25 (337) | 12.21 (311) | 67.99 (1727) | 689 (313) |
| CR 45-7 | 60 | 3 | 45.24 (1150) | 19.00 (483) | 14.90 (379) | 76.03 (1932) | 15.12 (385) | 13.19 (336) | 71.37 (1813) | 869 (395) |
| CR 45-8-1 | 60 | 3 | 48.39 (1230) | 19.00 (483) | 14.90 (379) | 79.18 (2012) | 15.12 (385) | 13.19 (336) | 74.52 (1893) | 878 (399) |

¹⁾ Weights are based on pump with TEFC motor (see price list for individual weights).
All dimensions in inches unless otherwise noted.

CRN 45



TM02 7704 1009

| Pump type | P2 [Hp] | Ph. | ANSI dimensions [inch (mm)] | | | | | | | Ship. wt. ¹⁾ [lbs (kg)] |
|------------|------------|-----|-----------------------------|-------------|-------------|--------------|-------------|-------------|--------------|---------------------------------------|
| | | | B1 | TEFC | | | ODP | | | |
| | | | | D1 | D2 | B1+B2 | D1 | D2 | B1+B2 | |
| CRN 45-1-1 | 7 1/2 | 1 | 22.20 (564) | 10.22 (260) | 7.62 (194) | 37.73 (959) | - | - | - | 259 (118) |
| | | 3 | 22.01 (560) | 8.66 (220) | 5.28 (135) | 37.52 (954) | - | - | - | 243 (111) |
| CRN 45-1 | 10 | 1 | 22.20 (564) | 10.23 (260) | 10.30 (262) | 38.27 (973) | - | - | - | 314 (143) |
| | | 3 | 22.01 (560) | 10.24 (261) | 6.26 (160) | 36.74 (934) | - | - | - | 243 (111) |
| CRN 45-2-2 | 15 | 3 | 29.49 (750) | 12.36 (314) | 8.00 (204) | 48.03 (1220) | 10.62 (270) | 7.33 (187) | 45.80 (1164) | 347 (158) |
| CRN 45-2-1 | 15 | 3 | 29.49 (750) | 12.36 (314) | 8.00 (204) | 48.03 (1220) | 10.62 (270) | 7.33 (187) | 45.80 (1164) | 347 (158) |
| CRN 45-2 | 15 | 3 | 29.49 (750) | 12.36 (314) | 8.00 (204) | 48.03 (1220) | 10.62 (270) | 7.33 (187) | 45.80 (1164) | 347 (158) |
| CRN 45-3-2 | 20 | 3 | 32.64 (830) | 12.36 (314) | 8.00 (204) | 51.18 (1300) | 11.50 (293) | 8.92 (227) | 52.33 (1330) | 361 (164) |
| CRN 45-3-1 | 25 | 3 | 32.64 (830) | 12.36 (314) | 8.00 (204) | 55.03 (1398) | 11.50 (293) | 8.94 (228) | 53.45 (1358) | 353 (161) |
| CRN 45-3 | 25 | 3 | 32.64 (830) | 12.36 (314) | 8.00 (204) | 55.03 (1398) | 11.50 (293) | 8.94 (228) | 53.45 (1358) | 353 (161) |
| CRN 45-4-2 | 30 | 3 | 35.79 (910) | 12.36 (314) | 8.00 (204) | 58.18 (1478) | 11.50 (293) | 8.94 (228) | 57.60 (1464) | 427 (194) |
| CRN 45-4-1 | 30 | 3 | 35.79 (910) | 12.36 (314) | 8.00 (204) | 58.18 (1478) | 11.50 (293) | 8.94 (228) | 57.60 (1464) | 430 (196) |
| CRN 45-4 | 30 | 3 | 35.79 (910) | 12.36 (314) | 8.00 (204) | 58.18 (1478) | 11.50 (293) | 8.94 (228) | 57.60 (1464) | 430 (196) |
| CRN 45-5-2 | 40 | 3 | 38.94 (990) | 15.32 (390) | 13.11 (333) | 62.13 (1579) | 13.25 (337) | 12.21 (311) | 62.19 (1580) | 632 (287) |
| CRN 45-5-1 | 40 | 3 | 38.94 (990) | 15.32 (390) | 13.11 (333) | 62.13 (1579) | 13.25 (337) | 12.21 (311) | 62.19 (1580) | 632 (287) |
| CRN 45-5 | 40 | 3 | 38.94 (990) | 15.32 (390) | 13.11 (333) | 62.13 (1579) | 13.25 (337) | 12.21 (311) | 62.19 (1580) | 632 (287) |
| CRN 45-6-2 | 50 | 3 | 42.09 (1070) | 16.88 (429) | 14.12 (359) | 69.90 (1776) | 13.25 (337) | 12.21 (311) | 64.84 (1647) | 677 (308) |
| CRN 45-6 | 50 | 3 | 42.09 (1070) | 16.88 (429) | 14.12 (359) | 69.90 (1776) | 13.25 (337) | 12.21 (311) | 64.84 (1647) | 677 (308) |
| CRN 45-7-2 | 50 | 3 | 45.24 (1150) | 16.88 (429) | 14.12 (359) | 73.05 (1856) | 13.25 (337) | 12.21 (311) | 67.99 (1727) | 687 (312) |
| CRN 45-7 | 60 | 3 | 45.24 (1150) | 19.00 (483) | 14.90 (379) | 76.03 (1932) | 15.12 (385) | 13.19 (336) | 71.37 (1813) | 867 (394) |
| CRN 45-8-1 | 60 | 3 | 48.39 (1230) | 19.00 (483) | 14.90 (379) | 79.18 (2012) | 15.12 (385) | 13.19 (336) | 74.52 (1893) | 876 (398) |

¹⁾ Weights are based on pump with TEFC motor (see price list for individual weights).
All dimensions in inches unless otherwise noted.

11. Motor data

Standard motors in the CR range

Motors used in the CR pump range are:

- Grundfos ML motors
- Grundfos specified **Baldor®** motors.

The information in the tables below applies to following motors type and size:

| Type | Phase | Motor range [Hp] | Cooling method |
|--------|-------|------------------|----------------|
| ML | 3 | 1/3 - 30 | TEFC |
| | 1 | 1/3 - 10 | TEFC |
| Baldor | 3 | 40-100 | TEFC |
| | 3 | 15-125 | ODP |

Grundfos CR pumps are supplied with heavy-duty 2-pole, NEMA energy efficient C-frame motors built or selected to our rigid specifications. All CR pump motors have heavy-duty bearings for maximum thrust requirements.

ODP motors

(Open Drip Proof, constant speed)

| Hp | Ph | ODP frame | ODP S.F. | ODP voltage [V] | ODP motor eff. % | ODP insul. class | ODP KVA code | ODP full load current | ODP service factor current | ODP starting current |
|-----|----|-----------|----------|-----------------|------------------|------------------|--------------|-----------------------|----------------------------|----------------------|
| 15 | 3 | 254TCZ | 1.15 | 208-230/460 | 89.5 | F | H | 37-35 / 17.5 | 40 - 39.4 / 19.7 | 225-248/124 |
| 20 | 3 | 254TC | 1.15 | 230/460 | 90.2 | B | G | 48/24 | 55 /27.5 | 306/153 |
| 25 | 3 | 284TSCZ | 1.15 | 208-230/460 | 91 | B | G | 64-59 / 29.5 | 74-67 / 33.5 | 335-374/187 |
| 30 | 3 | 284TSC | 1.15 | 230/460 | 91 | F | H | 70/35 | 80/40 | 480/240 |
| 40 | 3 | 286TSCZ | 1.15 | 230/460 | 91.7 | F | F | 94/47 | 108/54 | 542/271 |
| 50 | 3 | 324TSCZ | 1.15 | 230/460 | 92.4 | F | G | 116/58 | 134/67 | 706/353 |
| 60 | 3 | 324TSCZ | 1.15 | 230/460 | 93 | B | G | 132/66 | 152/76 | 844/422 |
| 75 | 3 | 364TSCZ | 1.15 | 230/460 | 93 | F | G | 168/84 | 192/96 | 1110/555 |
| 100 | 3 | 365TSCZ | 1.15 | 230/460 | 93 | F | G | 226/113 | 260/130 | 1380/690 |
| 125 | 3 | 405TSCZ | 1.15 | 460 | 93.6 | B | G | 140 | 171 | 897 |

Baldor motor



TM02 7696 3803

It is not recommended that an off-the-shelf standard Baldor motor be used on a Grundfos pump. Ideally, the best motor choice would be the Grundfos specified motor.

Single-phase Grundfos specified motors up to 7.5 Hp have a built-in thermal overload switch.

Other motor types are available (i.e., Explosion proof, Mill and Chem duty, Premium Efficiency, etc.); consult local Grundfos company for more information.

Pumps supplied by Grundfos Canada are normally supplied with motors from other manufactures. 575 volt motors meet NEMA energy efficient standards.

Dimensions and data will vary, contact local Grundfos company for more information.

All values are subject to change without notice.