



VAN RUTH PRODUCTS

PLUGS, PACKERS & ASSOCIATED DRILLING EQUIPMENT

VANRUTH.COM

## VAN RUTH<sup>®</sup> CEMENTING AND WEDGING PLUG (CW PLUG)



VAN RUTH<sup>®</sup> CEMENTING AND WEDGING PLUGS (CW PLUG) are highly effective as bridge plugs for spot cementing sections of holes and are also used for wedging in off bottom situations for branch hole operations.

For bridging and spot cementing the CW PLUG is inserted and pumped down an open rod string. Spring loaded slips grab the wall of the hole upon leaving the rod string and the tapers of the plug body and slips lock the plug in location. A high pump pressure reading and relief valve, discharge indicates the plug has locked in the hole with the upper portion of the plug still in the rods. Slowly raising the rods while maintaining a positive fluid pressure will complete the setting process. A drop to open hole pressure indicates the plug has left the rods and is ready for operations to follow. The CW PLUG may be drilled out after cementing if required.

For wedging with Hall-Rowe type wedges, the CW PLUG is inserted and pumped down to required location with water and set as above. A wooden plug is placed on top of the CW PLUG and the wedge is lowered and set in position before the wooden plug has time to expand, the wedge is then cemented in to prevent vibration and branch hole drilling operations can commence.

Do not lower the rod string back down on the plug in either situation as this will damage the plug and/or become stuck in the rods and pulled up hole.

For the same application but where the hole is making water please see the CWBP.

Construction: Drillable aluminium and rubber, Also available in non spark material illustrated above in black. Material Data Safety Sheets (MSDS) available upon request.

### INSTRUCTIONS FOR USE

Please ensure rod line is internally free from grease and scale.

It is recommended that some water is flushed down rod line for lubrication of seal and apply some clean rod joint grease to the tapered section of plug or packer before inserting in to the rods.

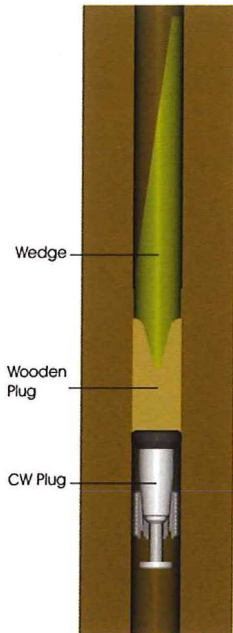
Lower an open rod line (no barrel) to depth where the VAN RUTH<sup>®</sup> Cementing and Wedging Plug (CW PLUG) is required to be located. A casing shoe bit may be used to protect pin end of rod (must be internally flush with rod), or cut pin end off a damaged rod and deburr inside edge.

Insert plug into rod until the slip's cable tie is level with top of rod, remove cable tie and by hand push down on slips as far as possible and then continue to push plug from the top so the plug is below thread, connect the head rod and tighten in chuck.

Set pressure relief valve at 400 PSI or 27 Bar minimum and pump plug down at a medium pumping rate.

A high pressure reading and relief valve discharge indicates plug has locked in hole, slowly raise rods while maintaining fluid pressure, a drop to open hole pressure indicates the plug has set correctly.

\*\*\*Do not lower the rod string back down on the plug as this will damage the cementing seal and/or the plug could become stuck in rod line and be pulled up hole\*\*\*



## **CEMENTING AND WEDGING BOTTOM PACKERS (CWBP)**



CEMENTING AND WEDGING BOTTOM PACKERS (CWBP) are used for cementing, wedging, and isolating ore zones or in conjunction with Sub Set Grout Packers (SSGP) to pressure grout specific fault zones or with permeability testing to isolate previously tested zones. They are also used in place of the Cementing Wedging Plug (CW) for applications where controlling water ingress is required.

Packer is set by pumping down an open rod line, spring loaded slips grab wall of hole upon leaving rod line and taper on plug locks in slips. Packing segment will then expand to a seal. A locking device built into packer ensures packer stays in a compressed and expanded position, sealing off hole and preventing cement washing out.

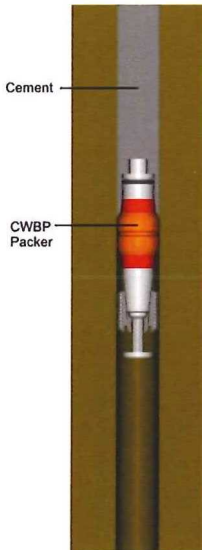
Where high pressure situations below packer location are present we recommend the additional use of Hold Down Plugs (HD).

Applications: locate packers in drill holes above and below ore zones with quantity of cement on top of packers to avoid inflow of water from drill holes, use packers with Hall-Rowe type wedges to cement wedge in position or placing a good cement plug for use with directional drills in an off bottom situation.

Packers are available for all diamond drill sizes, a Sub Set Cementing and Wedging Bottom Packer (SSCWBP) may be required for non-standard or large rotary percussion holes or non wire line rods.

Construction: Aluminium and Urethane

### **INSTRUCTIONS FOR USE**



Lower open rod line (no barrel) to depth Cementing and Wedging Bottom Packer (CWBP) is required to be located, a casing shoe bit may be used to protect pin end of rod (must be internally flush with rod), or cut pin end of damaged rod and deburr inside edge.

It is recommended that some water is pumped down rod line for lubrication of seal and apply some clean rod joint grease to tapered section of packer.

Insert packer into rod until slips cable tie is level with top of rod, remove cable tie and push down on slips as far as possible, push packer to below thread, connect head rod and tighten in chuck.

Set pressure relief valve at 400 PSI or 27 Bar minimum and pump packer down at medium pumping rate.

High pressure reading and relief valve discharge indicates packer has locked in hole, slowly raise rods while maintaining fluid pressure, a drop to open hole pressure indicates packer has set correctly.

With the Cementing and Wedging Bottom Packer (CWBP) it is recommended to back fill hole after cementing while pulling rods to stop differential pressure forcing packer back up hole. In high pressure situations below packer location we recommend the use of Hold Down Plugs (HD).

Please ensure rod line is internally free from grease and scale before using packers.

Note: do not put weight on packer with open rod line, it could get stuck in rod line and pulled up hole.



## **CEMENTING AND WEDGING TOP PACKER (CWTP)**



CEMENTING AND WEDGING TOP PACKERS (CWTP) are used to pressure grout unstable ground formations and fault zones or in conjunction with Cementing Wedging Bottom Packers (CWBP) to repair deteriorating up hole fault zones, thereby saving hole below fault and costly re-drill.

Packer has a inlet port on top as illustrated (right) and a non return valve, the top port is opened while setting the packer, rods are left in position with seal on packer engaged with rod and grouting can begin. Upon grouting, the slips retaining tube and cup are ejected, opening outlet port at bottom of packer.

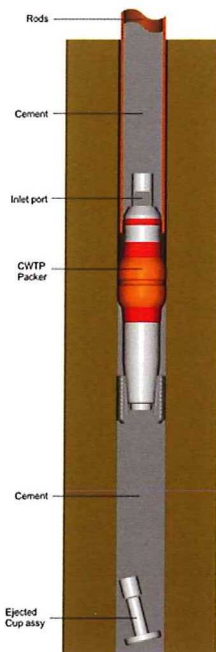
Permeability testing and ground stabilization can be done after hole is completed, rods are run to lowest test location, a Cementing Wedging Top Packer (CWTP) is used to test this location and also grout if required. A Cementing Wedging Bottom Packer (CWBP) is then used below the next section of hole to be tested, a CWTP packer is then used at the top of this section to do test and grout if required, and so on.

No time is lost due to rod trips or waiting for cement to set, the time and cost savings using this method could be considerable as only one rod trip is required for multi testing and grouting.

See also: Sub Set Grouting Packers (SSGP)

Construction: Aluminium and Urethane

### **INSTRUCTIONS FOR USE**



Lower open rod line (no barrel) to required location, a shoe bit with an internal chamfer and internally flush with rod must be used to center rod line

Insert Cementing and Wedging Top Packer until cable tie on slips is level with top of rod, remove cable tie and push packer to below thread and connect head rod, tighten rod in chuck, set pressure relief valve at 400 PSI or 27 Bar and pump packer down, a high pressure reading and relief valve discharge indicates packer has locked in hole.

Slowly raise rods (\*) while maintaining fluid pressure until pressure drop occurs, indicating that top inlet port is partially open, raise rods a further 35mm then lower rods 45mm to open top port fully, packer is then ready for use and fluid pressure can then be adjusted as required

Grout should be properly mixed to avoid blocking inlet port, when grouting is completed, back fill hole while pulling rods

If rods are accidentally raised from packer before testing or grouting is completed, stop pump and lower rods to re-engage seal on packer.

(\*) 155mm for BQ, 165mm for NQ and 180mm for HQ packers maximum, please ensure rods are internally free from grease and scale before inserting and pumping down packer.

Note: do not put weight on packer with open rod line, packer could jam in rod and pulled up hole.

## ***SUB SET CEMENTING AND WEDGING BOTTOM PACKER (SSCWBP)***

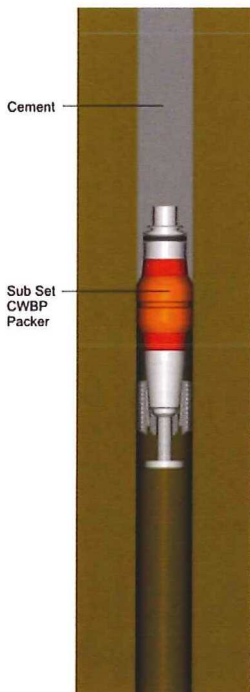


SUB SET CEMENTING AND WEDGING BOTTOM PACKERS (SSCWBP) are designed for use in the same situations as the cementing and wedging bottom packers (CWBP) but where non wire line rods are being used.

Packers are set by subbing casing or wire line rods to drill string. A re-usable adaptor located in casing or wire line rod joint is used to hold packer with shear pins. Rod string is then lowered to required location and packer pumped from rod string.

Construction: Aluminium Steel and Urethane

### **INSTRUCTIONS FOR USE**



Two lengths of casing or wire line rod are subbed to drill string. The pin on upper length is shortened by 4mm.

Adaptor is then attached to packer with shear pins, some grease is used on shear pins to keep pins in place.

Insert packer until cable tie on slips is level with top of joint. Remove cable tie and push packer down all the way until adaptor seats on bottom of box thread, connect upper length and sub to drill string.

Lower drill string to required location, avoid jarring of drill string until packer is below water level. Bleed air from rod line. Pump packer from rod line with about 400 psi fluid pressure.

When packer locks in hole, indicated by high fluid pressure reading, slowly raise rods while maintaining fluid pressure. Drop to open hole pressure indicates packer has set correctly.

Back fill hole while pulling rods as differential pressure could force packer up hole.



## ***SUB SET GROUTING PACKER (SSGP)***

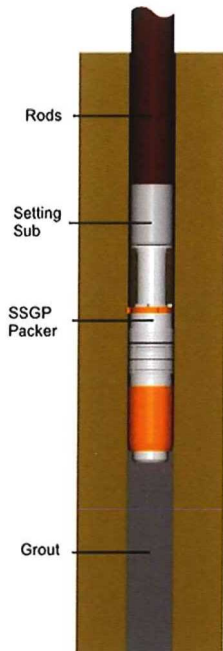


SSGP packers have many applications for both surface and under ground use and are designed for pressure grouting holes at any angle including overhead, they are equipped with a non-return valve to assist in pressure grouting.

A re-useable setting sub is required to connect between rod and packer.

Construction: Aluminium and Urethane

### **INSTRUCTIONS FOR USE**



Screw setting sub to rod line.

Grease threads and screw packer \*left hand thread\* to sub taking care not to over tighten.

Run rods to required location then pull back with about same force used to break soft core to set packer.

Maintain light tension on packer while grouting.

After grouting is completed, rotate rods clockwise from packer.

Circulate water to clean cement from rod line and pull rods

## **GROUT AND WATER CONTROL PACKER (GWC)**



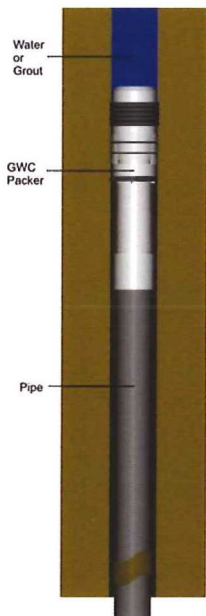
GROUTING AND WATER CONTROL PACKERS (GWC) are designed for use in underground drill holes for grouting and water control and is usually set by hand.

Large sizes can be used as stem pipes or drill collars for drilling smaller size holes, ie: the NGWC (76mm) packer can be used as a collar pipe for drilling 46mm holes.

Packers are available for all diamond drill, long hole, some large drill steel sizes and rotary percussion holes in a range of from 32mm to 152mm.

Grouting and Water Control Packers can also be supplied blanked off (solid bore)

Construction: Aluminium and Rubber (sizes 0-96mm)  
 Aluminium, Steel and Rubber (sizes 108mm +)



### **INSTRUCTIONS FOR USE**

The Grouting and Water Control Packer is fitted to required length of pipe with open valve attached.

Packer is then inserted to required depth, a pull back and closing of valve will set packer.



## ***ANCHOR PLUG (AP)***

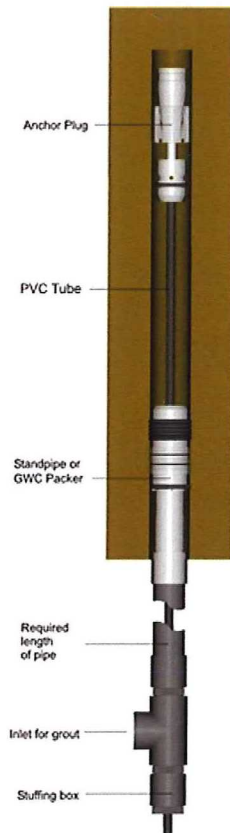


Anchor plugs (ap) are designed to allow grouting of holes above horizontal to evacuate air from blind holes in tight formations.

Anchor plugs can also be supplied with adaptors to suit up hole hoisting purposes.

Construction: Aluminium

### **INSTRUCTIONS FOR USE**



Anchor Plug is inserted in open rod line with PVC hose and stuffing box attached.

Plug is pumped to near end of hole, out of rod line.

PVC hose is cut 1.5 to 2meters from stuffing box, rods removed from hole.

Stuffing box reinstalled in stem pipe or Grouting and Water Control Packer (GWC).

Ggrout is then pumped uphole, bleeding displaced air through pvc hose until grout discharges from pvc hose.



## ***HOLD DOWN PLUG (HD)***



HOLD DOWN PLUGS (HD) are used with Cementing and Wedging Bottom Packers (CWBP) or Cementing and Wedging Top Packers (CWTP) when high pressures are present below packer locations.

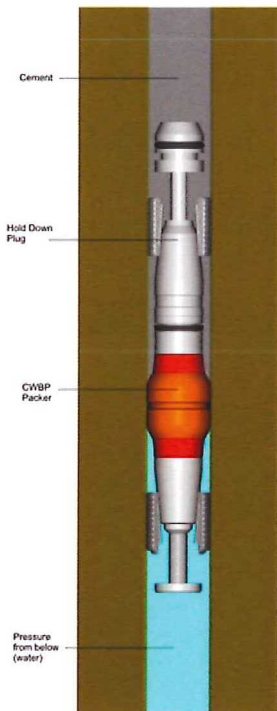
A cementing wedging bottom packer and hold down plug can be set together. Procedure is to pump packer down some 20 meters or more, insert hold down plug into head rod, then follow instructions for setting packer. When raising rods from packer, continue until rods are about 400mm above packer and set hold down plug as per instructions.

\*\*\* The above method cannot be used with the CWTP packer \*\*\*

A casing shoe bit or similar must be used to centre rod line, bit must be internally flush with rod and have some internal chamfer to aid seal on hold down plug.

Construction: Aluminium and Rubber

### **INSTRUCTIONS FOR USE**



HD plugs are used with Cementing and Wedging Bottom Packers (CWBP) and Cementing and Wedging Top Packers (CWTP) when high pressures are present below packer locations.

Insert Hold Down Plug into head rod from pin end with rubber seal end of plug facing upwards until cable tie on slips is level with bottom of rod, remove cable tie and push the hold down plug up into rod until second cable tie is level with bottom of rod. Remove cable tie and push hold down plug up into rod, connect rod and lower rod line to about 400mm above existing packer in hole, pump hold down plug down and completely out of rod line.

Stop pump and push lightly down on plug until contact with top of existing packer below is sensed. Restart pump and raise rods, the drop to open hole pressure indicates plug has set correctly.

A Cementing Wedging Bottom Packer (CWBP) and hold down plug can be set together. Procedure is to pump packer down some 20 Meters or more, insert hold down plug into head rod then follow instructions for setting packer. When raising rods from packer, continue until rods are about 400mm above packer and set hold down plug as per instructions.

\*\*\* The above method cannot be used with the CWTP packer \*\*\*

A casing shoe bit or similar must be used to centre rod line, bit must be internally flush with rod and have some internal chamfer to slide over seal on hold down plug.

## FLOAT SHOES & COLLARS (FLOSHO) (FLOCOL)



Float Shoe

Float Shoes (FLOSHO) and Float Collars (FLOCOL) act on the same principle as our Bull Nose Plugs but with a non return (one way) valve and a heavier duty locking mechanism.

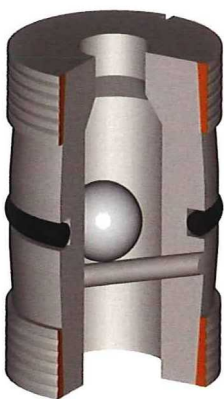
The Float Shoe is used where long casing or rod strings are being used.

The Float Collar can be located inside any rod in the drill string. It is inserted into rod with a 2 way locking mechanism and non return (one way) valve.

See Also: Bull Nose Plug

Construction: Aluminium and rubber

### INSTRUCTIONS FOR USE



Float Collar

Float Shoes: Clean end of rod or casing free from grease or scale, insert Float Shoe into rod.

Float Collar: Clean rod or casing free from grease or scale, insert first ring into rod or casing at required position.

Insert body of float collar taking care to place non return valve flow in correct direction into rod or casing until the taper is engaged on the first ring.

Insert second ring into rod or casing and press down until ring engages taper on float collar.



## ***BULL NOSE PLUG (BNP)***



BULL NOSE PLUGS (BNP) are used for bypassing wedges or loose casing in drill holes when an open rod line is used for the purpose of setting plugs or packers or other down hole equipment. The Bull Nose Plug can also be used as a float shoe for long casing or rod strings.

See also: Float Shoes and Collars (FLOSHO, FLOCOL)

Construction: Aluminium and Rubber



### **INSTRUCTIONS FOR USE**

Clean end of rod or casing free from grease or scale.

Wet o'rings and inside of rod or casing and insert bull nose plug as illustrated.

Bleed air from rods or casing before plug is pumped out.