WASHING OVER SHOES

Washover Shoes - Description and Usage

Washover shoes mill away formation or tool obstructions such as stabilizer blades, reamer cutters, expanded packers and bit bodies which may be holding the drill string in the hole. By using joints of wash pipe, the Wash over shoe can be slipped over the drill string and lowered to the stuck fish. Designs are available for heavy wall and for thin wall shoes, for working in open hole, or for working inside the casing.

Use Washover Shoes to Free or Washover :

Back Off Tolls	Drill Collars	Keyseat Cutters	Rock Bits	Stabilizers
Drill Pipe	Jars	Packers	Reamers	Subs

Technique for Washing Over

Generally when milling Washover Shoes, light weight and low speeds will reduce the possibility of splitting or flaring the shoe. Start at 50 to 100 RPM and gradually increase to 125 to 150 RPM. Slowly increase weight from 2,000 lbs. to 6,000 lbs. If torque is encountered, reduce speed and weight.

Break off the string 30' to 60' above the pipe. This will allow you to run a minimum number of wash-pipe joints, which is especially important in unstable formation.

Cutting Removal When Washing Over

When running Wash over Shoes, the rate of penetration can be high. This can cause problems with cutting removal. Pat attention to proper mud conditioning. Be sure cuttings are being removed as milled. If you encounter problems getting optimum cutting return, decrease weight on tool and rotary table speed.

Selection of The Right Washover Shoes

Toothed: The toothed type is best suited for cutting formation and cement when a minimum of metal obstructions will be encountered during the washover interval. This tool is highly effective for washing over stuck collars or drill pipe, as well as tubing that might be sanded in place.

V-Notch, Wavy Bottom And Flat Bottom (Perforated) : The perforated shoe is generally manufactured with a flat bottom, V -notch or wavy bottom cutting pattern. This perforation design allows the wall of the shoe to be filled with Tungsten carbide. This results in a self-sharpening action on the ID., O.D.,

and across the entire face. The perforated dress design eliminates the common problem of the carbide bottom dress wearing off, exposing a ring of steel where the carbide is most needed.

Ordering Washover Shoes

Parveen Washover Shoes give long wear and maximum performance. They are dressed with specially selected Tungsten carbide hard facing, which provides continuous sharp cutting edges for long washover intervals. PARVEEN will apply dressing anywhere on the shoes - bottom, inside, outside; any combination necessary. Depending on the job requirements, wear pads can be provided on the aD. to protect the casing. When ordering Washover Shoes, be sure to specify Washover Shoe O.D. and I.D. dimensions, wall thickness and connections.

- Due to the high temperature required for proper Tungsten carbide application, it is best to maintain a 3 / 8 " minimum wall thickness in the dressed area of the shoe. This will eliminate the possibility of tearing the steel. The wall thickness is also critical due to the area needed for effective carbide coverage.
- To allow proper circulation and to reduce torque, adequate clearance is necessary on both the I.D. and O.D. of the shoe. It is recommended that the I.D. of the dressed head be at least 1/16" less than wash pipe I.D. The O.D. should be dressed 1/16" larger than the wash pipe O.D. This permits the use of inner and outer gauge cutters on the head of the shoe. This will firm the fish so it will pass into the wash pipe without interference. The outer gauge cutters provide a circulation annulus for cutting removal. Where conditions allow, these clearances should be enlarged, provided the 3/8" minimum wall thickness of the shoe is maintained.

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STYLES OF SHOES:

Style - A: Hard facing on I.D. and bottom. It is applied to cut metal of object without any damage to casing. No hard facing on O.D.

Style - B: Hard facing on O.D. and bottom. It is used for washing over a fish & cutting formation within openhole. No hard facing on I.D.

Style - C: Hard facing on O.D., I.D. and bottom applied for washing over & metal cutting.

Style - D: Hard facing on I.D. and bottom its cuts metal on the fish without cutting the casing, where clearance is restricted.

Style - E: Hard facing on O.D. & bottom. It is applied for washing over fish/cutting metal! formation, etc. in openhole where clearance is restricted.

Style - F: Hard facing on- I.D. having taper & on bottom. It is applied for dressing & sizing the upper portion of object within casing.

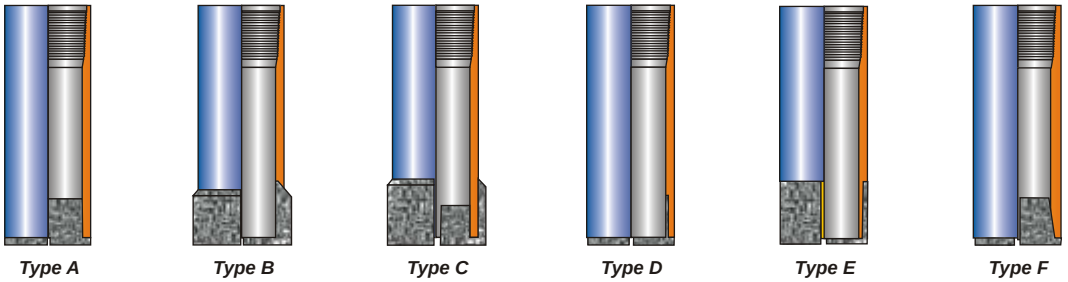
Style - G: Hard facing on I.D., O.D. and bottom. It is applied for washing over fish/ cutting metal/formation etc. in open where clearance is restricted.

Style - H: Hard facing on I.D. & O.D. only. It is applied for washing over & metal cutting in openhole where clearance is restricted.

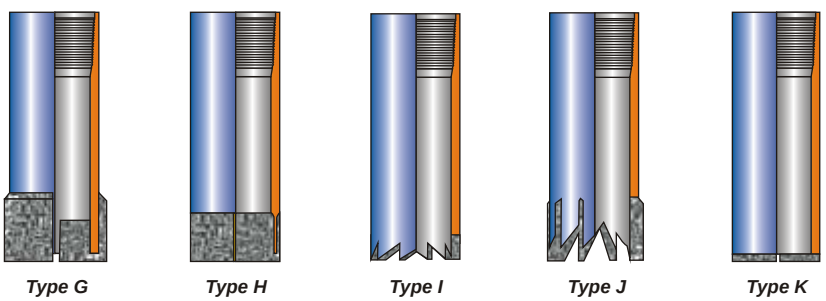
Style - I: Hard facing on the bottom only. It is applied for washing over & formation cutting. Its milling teeth allow optimum circulation.

Style - J: Hard facing on bottom & O.D. It is applied for washing over and formation cutting. Its milling teeth having side wings allow optimum circulation.

Style - K: Hard facing on bottom face only. It is applied for washing over and bottom face cutting



Type A *Type B* *Type C* *Type D* *Type E* *Type F*



Type G *Type H* *Type I* *Type J* *Type K*

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SPECIFICATION					
NO. OF TEETH	CONNECTIONS	STANDARD O.D. OF BODY	MINIMUM I.D. OF BODY	LENGTH	WEIGHT lbs.
	4 F.J.	4	3-1/4	16	18
	4-1/2 F.J.	4-1/2	3-3/4	16	20
	4-1/2 E.U. Or E.L.	4-7/8	3-3/4	16	32
	4-3/4 F.J.	4-3/4	4-1/16	16	28
	4-3/4 E.U. Or E.L	5-1/8	4-1/16	16	34
	5 F.J.	5	4-3/16	16	23
	5E.U. Or E.L	5-3/8	4-3/16	16	39
	5-1/2 F.J.	5-1/2	4-5/8	16	30
	5-1/2 E.U. Or E.L	5-7/8	4-9/16	16	47
6	5-3/4 F.J.	5-3/4	5	16	26
	5-3/4 E.U. Or E.L	6-1/8	5	16	30
	6 F.J.	6	5-3/16	16	28
	6 E.U. OR E.L.	6-3/8	5-3/16	16	48
	6-5/8 F.J.	6-5/8	5-11/16	16	41
	6-5/8 E.U. Or E.L	7-	5-5/8	16	65
	7 F.J.	7-	5-13/16	16	47
	7 E.U. Or E.L	7-1/2	5-13/16	16	72
	7-5/8 F.J.	7-5/8	6-5/8	16	47
	7-5/8 E.U. Or E.L	8-1/16	6-9/16	16	76
8	8-1/8 F.J.	8-1/8	7-1/8	16	50
	8-5/8 F.J.	8-5/8	7-1/2	16	60
	8-5/8 E.U. Or E.L	9-1/8	7-7/16	16	97
	9 F.J.	9	7-13/16	16	56
	9 E.U. Or E.L	9-1/2	7-3/4	16	78
	9-5/8 F.J.	9-5/8	8-1/2	16	68
10	9-5/8 E.U. Or E.L	10-1/8	8-7/16	16	118
	10-3/4 F.J.	10-3/4	9-3/4	16	68
	11-3/4 F.J.	11-3/4	10-3/4	16	160
	16 API	17	15-1/4	16	190
	20 API	21	19-1/8	25	-