

ROCKDRILLING EQUIPMENT

ARDILLO BELEGGINGS T/A CK2000/029935/23

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RISK ASSESSMENT FOR MANIFOLDS MANUFACTURED BY ROCKDRILLING EQUIPMENT

50mm and 100mm Manifolds for Compressed air and Water supply are covered by this assessment:

Rock Drilling Equipment is renowned for producing the best quality products. Our knowledge in this field is unquestioned, and our manifolds are performance proven.

As safety has always been a priority to us, we would never compromise quality, reliability and functionality. We strive to keep all manufacturing processes as environmentally friendly as possible.

Rock Drilling Equipment's manifolds were primarily designed for the coupling of hoses to Air and Water supplies in mines. Modifications were done, ensuring better performance, extended lifetime, durability and easy maintenance.

INTRODUCTION

NO SIGNIFICANT RISK WAS IDENTIFIED BY THIS RISK ASSESSMENT ON MANIFOLDS PROVIDED THE PRODUCTS ARE USED WITHIN THE DESIGN SPECIFICATIONS.

Product features include:

- Robust design of products for ease of installation and durability.
- Manufactured from high quality cast iron steel and mild steel.
- Quick fit system

<u>Please note:</u>

- a. Special personal protective equipment to worn by persons.
- b. Hand protection.
- c. Hearing protection.

RISK ASSESSMENT CONDUCTED BY

J H Jacobs.

Mine overseer Certificate.

Certificate in Mine Environmental Control.

Certificate in Risk Management – University of Stellenbosch.

Several other certificates in Risk Assessment and Risk Management.

42 Years mining experience.

RISK INDEX SEVERITY

| SCALE | PEOPLE | EQUIPMENT | MATERIAL | ENVIRONMENT | PROCESS |
|-------------|----------------------------------|--------------------------|---------------------------|-----------------------------------|----------------------------------|
| | Injury not likely to result in a | Damage not exceeding | Shortage, wastage or | Negligible change in the | Hold up of production or |
| 1 | lost time. | R 1000 | damage causing loss not | environment, short term, no | process which can be made up |
| | Dressing case only | | exceeding R 1000 | lasting effect, small spill, | during the same shift - no |
| NEGLIGIBLE | No visible injuries. | | | clean up not exceeding | loss. |
| | | | | R 1000- No liabilty and / or | |
| | | | | compensation costs | |
| | | | | No negative publicity. | |
| | | | | | |
| | Non reportable injury | Damage between R1000 and | Shortage, wastage or | Minor change, short term, no | Hold up of production or |
| | | R10 000 | damage causing loss of | lasting effect, small spill, | process which can be made |
| 2 | Less than 14 days lost | | between R 1000 - R 10 000 | clean up costing between | up during the next shift. |
| | | | | R1000 - R10 000 | |
| MINOR | | | | No liability and or compen- | |
| | | | | sation costs. | |
| | | | | No negative publicity | |
| | | | | | |
| | Injury likely to be reportable | Damage between R10 000 | Shortage, wastage or | Spill likely to remain evident | Hold up of production or |
| | 14 days or more lost | and R100 000 | damage causing loss of | for several days or weeks | process likely to result in loss |
| 3 | Fractures, deafness | | between R10 000 and | Clean up costing between | not more than R100 000 |
| | cosmetic scarring | | R 100 000 | R10 000 - R100 000 | 1 panel blast lost |
| SIGNIFICANT | Small limb amputations. | | | No liability and or | can not be made up. |
| | | | | compensation costs but | |
| | | | | negative publicity may occur. | |
| | | | | | |
| | Injury resulting in fatal or | Damage between | Shortage, wastage or | Spill likely to have lasting | Hold up of production or |
| | total disablement such as | R100 000 - R1m | damage causing loss of | effects on the environment. | process likely to result in loss |
| 4 | paraplegic, amputation of 2 | | between R100 000 and | clean up. liability and or | of between R100 000 and |
| | limbs, blindness. | | R1m. | compensation costs between | R1m. More than 1 panel for |
| SERIOUS | | | | R100 000 and R1m. Serious | more than 1 day- can not be |
| | | | | negative publicity may occur | made up. |
| | | | | | |
| | | Damage between R1m and | Shortage, wastage or | Spill likely to have long lasting | Hold up of production or |
| | Multiple fatals (2 to 4) | R5m | damage causing loss of | effects on the environment. | process likely to result in loss |
| 5 | | | between R1m and R5m | clean up, liability and or | of between R1m and R5m |
| | | | | compensation costs between | Several panels over several |
| MAJOR | | | | R1m and R5. Severe | days can not be made up. |
| | | | | negative publicity may occur | |
| | | | | | |
| | | Damage in excess of R5m | Shortage wastage or | Spill likely to affect human | Production/process loss |
| | More than 4 fatalities. | | damage causing loss in | animal and plant life, clean up | likely to result in losses in |
| 6 | incrothan - futantios | | excess of R5m | or liability/ compensation | excess of R5m, many or all |
| | | | | costs in excess of R5m | panels lost over several |
| CATASTROHPY | | | | Effects likely to be permanent | days- can not be made up. |
| | | | | or last for several years. | |
| | | | | | |
| | | | | | |

RISK INDEX

| PROBABILTY | | | | | | | | | |
|------------|--------|------------|---------|-----------------------|----|---------|----------|--|--|
| S | RATING | 1 | 2 | 3 | 4 | 5 | 6 | | |
| Е | | 1-10 Years | 1/ Year | 1/Year 1/Month 1/Week | | 1 / Day | > 1/ Day | | |
| V | 1 | 1 | 2 | 5 | 7 | 9 | 12 | | |
| Е | 2 | 3 | 6 | 8 | 10 | 13 | 16 | | |
| R | 3 | 4 | 11 | 14 | 17 | 20 | 24 | | |
| Ι | 4 | 15 | 18 | 21 | 25 | 28 | 31 | | |
| Т | 5 | 19 | 22 | 26 | 29 | 32 | 34 | | |
| Y | 6 | 23 | 27 | 30 | 33 | 35 | 36 | | |

CLASSIFICATION

| RISK INDEX | PRIORITY | REMARKS |
|------------|----------|---|
| 1 TO 10 | С | Immediate action not required |
| 11 TO 20 | В | Requires action when practicable possible |
| 21 TO 36 | А | Immediate action required (Serious event) |

| | RISK ASSESSMENT WORK SHEFT | | | | | | | | |
|------------|----------------------------|----------------------|---|---|---|---|----|---------|--|
| Numb er | b Step/Area H Task/Item | | azard | Undesired event | S | Ρ | RI | R/ C | Recommendations/ Controls |
| 1 | The Manifold | Pa | or welding | The Manifold may burst and persons in the vicinity may be struck by shrapnel, or struck by small dust particles from an air column. Wastage of air or water. Noise from the compressed air blowing out. | 4 | 1 | 15 | В | Manifolds are tested in the factory to a pressure of 10 bar and welding is subjected to inspection and quality control. |
| 2 | | Th mo de | le supply pressure is ore than the signed specification. | The Manifold may burst and persons in the vicinity may be struck by shrapnel, or struck by small dust particles from an air column. Wastage of air or water. Noise from the compressed air blowing out. | 4 | 1 | 15 | В | Manifolds are tested in the factory to a pressure of 10 bar and welding is subjected to inspection and quality control. The user organization must ensure that the supply pressure do not exceed 10 bar. |
| 3 | Valves and spuds | Nc ad | ot screwed down lequately | Such valves and spuds may become dislodged and result in leakage of fluid. | 2 | 4 | 10 | С | All persons performing this task and supervisors should receive training on the installation of valves and spuds. |
| | | Wa va us | orn and damaged lves and spuds ed. | Such valves and spuds may become dislodged and result in leakage of fluid. | 2 | 4 | 10 | С | All persons performing this task and supervisors should receive training on the installation of valves and spuds and to inspect valves and spuds for wear and damage before installing same. |
| 4 | | No se sp |) rubber als/gaskets in uds. | Leakage will occur and prolonged exposure to the resulting noise may cause noise induced deafness. | 2 | 4 | 10 | С | All persons performing this task and supervisors should receive training on the installation of valves and spuds and to inspect spuds to ensure that seals/gaskets are in place before installing same. Spare seals and gaskets should be available. |
| 5 | Inlet spud | Hc me ch Cc | ose not secured by eans of a safety ain of sling. (ompressed air) | The hose may become dislodged and cause whiplash which could strike persons in the vicinity. | 4 | 1 | 15 | В | A safety chain or sling must be used to secure the hose to the manifold. |

| 6 | Removing the hose from the spud. | Not closing the fluid supply before doing so. | The hose under pressure may whiplash and strike the person removing the hose or even someone close by. | 4 | 1 | 15 | В | Persons performing this task must receive training and instruction to ensure that the fluid supply is closed before removing the hose from the spud. The safety chain or sling should only be removed after the hose was removed from the spud. |
|----|--|--|--|---|---|----|---|---|
| 7 | Nipples on manifolds | Damage to threads. | Valves and spuds will not be able to be secured properly and may result in leakages and dislodging. | 3 | 4 | 17 | В | Manifolds should not be transported with protection over the threads of the nipples. Valves may be used for this purpose. Persons performing this task should be trained not to throw the manifolds but to handle it with due care. Damaged items can be salvaged and repaired. |
| 8 | Opening the fluid after installation. | Sudden increase in pressure . | Bursting of the manifold in the event of any defects and possible injury to person nearby. | 4 | 1 | 15 | В | Persons performing this task should be trained to open the fluid supply slowly. |
| 9 | Dust/fines /oxidation | Build up of dust and fines/oxidation inside manifold. | Such dust and fines or oxidation may be blown onto persons when opening the fluid supple at the end of the hose. This may cause pepper wounds and severe eye injuries. Blockages may occur. | 4 | 1 | 15 | В | Persons performing this task should be trained to purge all the valves immediately after installation and not to direct hoses to persons. Manifolds must be inspected for foreign articles inside before installation. |
| 10 | Hoses from the outlets on the manifold not connected at the delivery end where work will be done. (Drilling,Blowing) | Hoses put under pressure. Supply opened inadvertently or by unauthorized person. | Whiplash may occur which could seriously injure persons. | 4 | 1 | 15 | В | A lock out system here would be impracticable. Persons should be trained not to let loose hoses lie around and that no one other than the operator may open any valve and then only after ensuring that no person will be endangered by doing so. Opening of any valve should always be done slowly. |
| 11 | Repairs | Repairs effected by incompetent person. | Failure may occur which could cause personal injury. | 4 | 1 | 15 | В | Repairs, especially welding, must be performed by competent persons. |

50mm Manifold

8 x 25mm Outlets

1 x 25 mm Inlet

50 mm Steel Pipe



100mm Manifold

8 x 25mm Outlets

1 x 50 mm Inlet

100 mm Steel Pipe

