

OIL-FREE LUBRICATED ROTARY SCREW COMPARISON

OIL FREE ROTARY SCREW

ROTOR TURN AT HIGH SPEEDS
HIGH COMPRESSION TEMPERATURES
(290F & ABOVE)
1ST STAGE ROTOR - 9400 RPM
2ND STAGE ROTOR - 15000 RPM
HIGHER MAINTENANCE

OIL FLOODED ROTARY SCREW

ROTORS TURN AT LOW SPEEDS
LOW COMPRESSION TEMPERATURES
(180F)
SINGLE ROTOR - 1500 RPM
LOWER MAINTENANCE

POWER CONSUMPTION

OIL FREE

REQUIRES A LARGER H.P. MOTOR
TO ACQUIRE THE SAME CFM AS A
LUBRICATED.

LUBRICATED

SMALLER H.P. MOTOR IS USED
TO ACCOMPLISH CFM REQUIRE-
MENTS. MORE ENERGY EFFICIENT.

AFTERCOOLERS

OIL FREE

WATER-COOLED
WATERLINE MUST BE INSTALLED
CONSUMPTION (30-35 GPM)
(1800-2100 GPH)
WATER USED TO COOL COMPRESSOR
AIR END - WATER RUPTURE CAN
CAUSE INTERNAL COMPRESSOR
DAMAGE.

LUBRICATED

AIR-COOLED
NO WATER CONSUMPTION
MORE EFFICIENT COOLING
HIGH CAPACITY AIR FLOW

DESSICANT DRYERS

OIL FREE

DRYERS MUST BE USED BECAUSE
OF HIGH COMPRESSION TEMPERATURES.
COMPRESSION TEMPERATURES ARE IN
EXCESS OF 290F. THE WATER COOLER
REDUCES THE MOISTURE LADEN AIR TO
20F ABOVE GROUND WATER TEMPERATURE.
THIS DRASTIC CHANGE OF TEMPERATURE
CAUSES TREMENDOUS AMOUNTS OF WATER
TO BE DROPPED FROM THE AIR. WATER
MUST BE REMOVED TO PREVENT DOWN
STREAM TRAVEL.

LUBRICATED

DOES NOT HAVE THE DRASTIC
CHANGE OF TEMPERATURE BETWEEN
COMPRESSION & DISCHARGE 180F TO
10F ABOVE AMBIENT. A SIMPLE
SEPARATOR MAY BE USED TO HANDLE
SMALL AMOUNTS OF MOISTURE.

"CAUTION"

DESSICANT DRYERS ARE DESIGNED TO REMOVE MOISTURE LADEN AIR FROM THE COMPRESSED AIR SOURCE. THESE ARE USED IN INSTRUMENT AIRLINES **NOT** BREATHING AIR. THE REASON BEING, DRYERS REMOVE TOO MUCH MOISTURE. DEW POINTS USUALLY EXCEED -40F DEWPOINT AND LOWER. PAST EXPERIENCE IN THE USE OF DRYERS CAUSES RESPIRATORY PROBLEMS. WORKERS WILL NOTICE DRYING OF THE THROAT, SORE THROATS, PREMATURE DEHYDRATION, ADVANCED ONSET OF HEAT PROSTATION AND DRYING MUCOUS MEMBRANES. THE MAXIMUM RECOMMENDED DEWPOINT IS 23F WHICH EQUATES TO 2% RELATIVE HUMIDITY BASED ON 70F AMBIENT AIR AND 80% RELATIVE HUMIDITY.

THESE DESSICANT DRYERS ARE COSTLY TO MAINTAIN AND USE. IF DRYERS MUST BE USED THE REFRIGERATED TYPE IS HIGHLY RECOMMENDED. THE REFERIGERATED DRYERS WILL ALSO DRY THE AIR TO AN UNCOMFORTABLE DEW POINT.

PIPING

IF EXISTING PIPING IS TO BE USED, WAS THE PREVIOUS SYSTEM FILTERED? CAN THE PIPING FORM SCALE? (IE: RUST AND PARTICULATE MATTER.)

IF SO, THE SYSTEM IS CONTAMINATED AND MUST BE FILTERED TO GRADE-D BREATHING AIR AT THE POINT OF RESPIRATOR ATTACHMENT. NOW A POINT-OF-ATTACHMENT CONFIGURATION MUST BE USED. THIS CONSISTS OF A REGULATOR, GAUGE, RELIEF VALVE (125 PSI) AND FITTINGS COMPATIBLE WITH THE RESPIRATORY DEVICE. THIS WILL MEET THE CRITERIA THAT NIOSH REQUIRES.

BELT DRIVEN VS. COUPLING

OIL FREE - DIRECT DRIVE

EXPENSIVE TO REPLACE
THE MOTOR HAS TO BE REMOVED
TO CHANGE COUPLING.
TIGHT TOLERANCES FOR ALIGNMENT
COSTS 10 TIMES THE AMOUNT OF A
SET OF BELTS.

LUBRICATED - BELT DRIVEN

ECONOMICAL
HIGHLY DEPENDABLE
SIMPLE TO INSTALL
ABSORBS SHOCK
QUIET
REQUIRES NO LUBRICATION
ELECTRIC MOTOR RPM'S REDUCED
BY THE USE OF SHEAVES.

CONTROLS

MICROPROCESSOR

COSTLY TO REPLACE
DIFFICULT TO TROUBLESHOOT

SOLID STATE

INEXPENSIVE TO REPLACE COMPONENTS
EASIER TO TROUBLESHOOT

SINGLE COMPRESSOR VS. DUAL COMPRESSOR

SINGLE

RUNS CONSTANTLY TO
ACCOMMODATE AIR DEMAND.
HIGH POWER CONSUMPTION
IF THE UNIT FAILS, THERE
IS NO BACK-UP AIR SOURCE.
LONGER RUNNING TIME - MORE
WEAR & TEAR.

DUAL

SEQUENCER USED TO SWITCH FROM
COMPRESSOR 1 TO 2 OR VICE VERSA.
TIMERS USED TO DESIGNATE LEAD/LAG
COMPRESSOR. ONLY 1 COMPRESSOR
RUNS UNTIL TIMES OF HIGHER DEMAND.
LOW POWER CONSUMPTION
IF ONE COMPRESSOR SHUTS DOWN THERE
IS A BACK-UP. RUNNING TIME IS SPLIT
BETWEEN THE TWO COMPRESSORS.