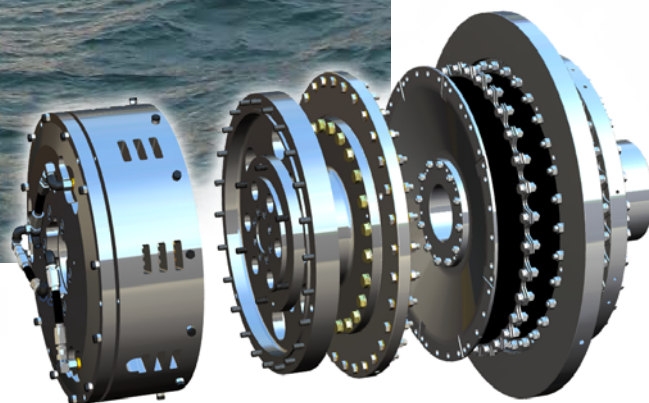
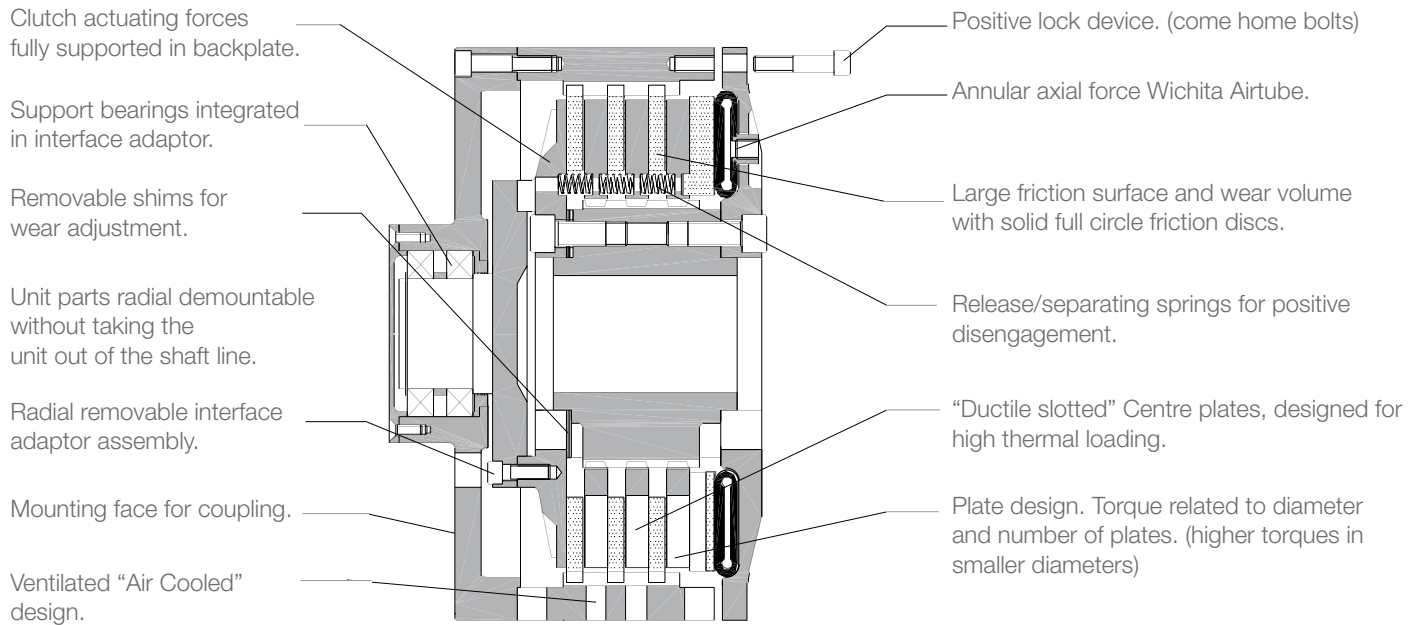


## **MSV/BRG** **Marine** **Clutches**

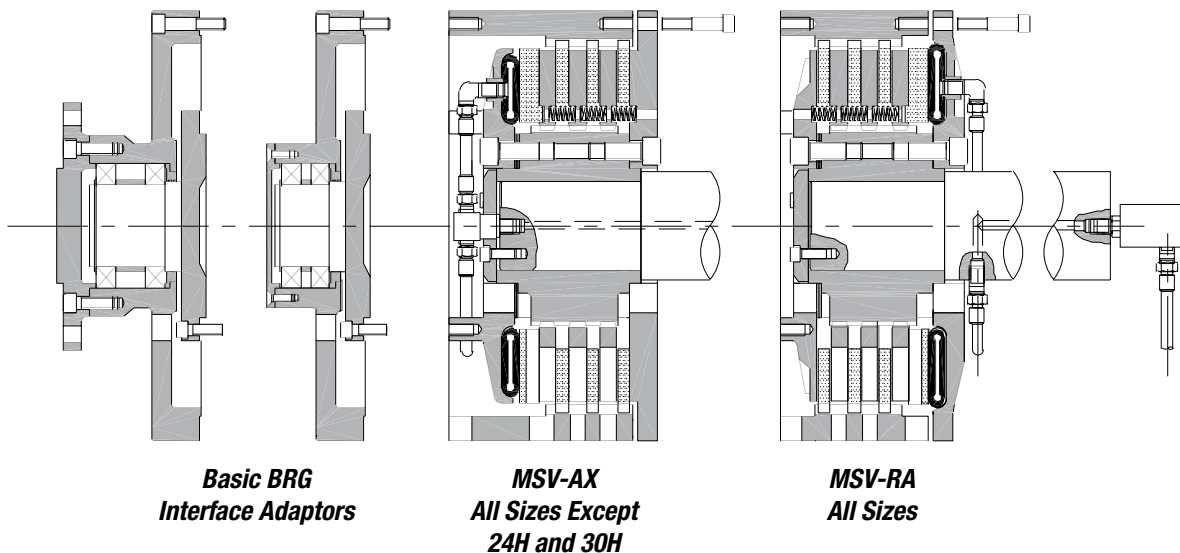


## FEATURES

**For drive arrangements in marine propulsion - PTO/PTI - dredge pump and thruster applications. Suitable for shaft-to-shaft or flange-to-shaft combination with most types of couplings.**



## BASIC CLUTCH ARRANGEMENTS



## CONCEPT AND SELECTION

### Concept

In designing the MSV/BRG clutch, Wichita has successfully united its own expertise as a clutch manufacturer with that of coupling manufacturers, to offer an adaptor interface identified as “BRG.” Featuring an integrated support bearing, the interface enables the clutch to be connected to many different coupling types. This design solution allows a purchaser to source their preferred coupling separately from the clutch.

The MSV/BRG clutch is a pneumatic, dry-friction and multi-plate unit utilizing many parts from current Wichita models, including the airtube and ventilated friction pack. The annular neoprene airtube provides an axial force (expressed as a function of air pressure and effective area) that is exerted upon the friction pack to transmit torque. Careful consideration at the design stage ensures that the axial force is fully deployed within the clutch and not transmitted to any of the external parts.

The torque capacity of the clutch is derived from four factors: friction coefficient, mean friction radius, number of friction faces and the axial force applied by the airtube. External splines on the friction discs mesh with internal splines on the clutch's outer ring to facilitate axial movement of the friction pack during engagement and disengagement, and separation springs in the friction pack ensure positive clutch release. The friction pack comprises grooved-face, radial friction discs and ductile slotted centre plates. The grooves in the friction linings aid ventilation and wear debris removal, while the slotted centre plates endure high thermal loadings. All service components can be removed without taking the unit out of the shaft line.

### Clutch selection *(see product-specific data sheets for performance and dimensions)*

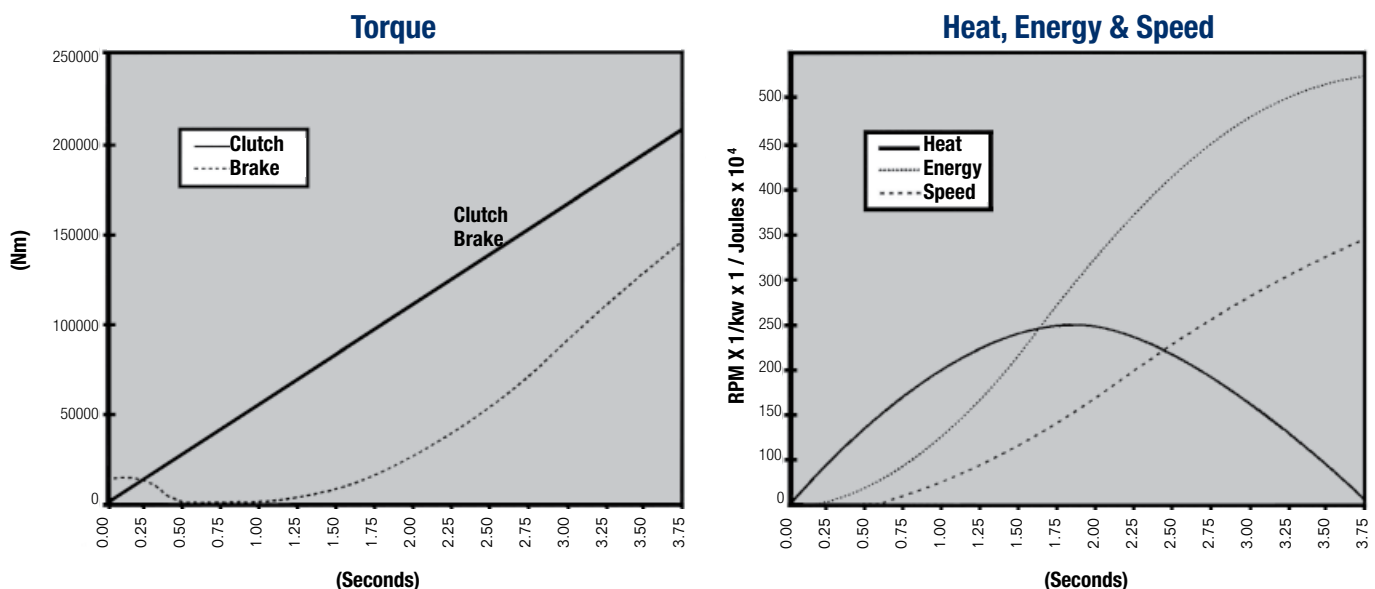
The chosen clutch torque rating must be equal to or greater than the nominal application torque multiplied by the desired application safety factor “K”. For preliminary selection purposes, it is suggested to use K=2 for CP propeller and PTO drives and K=2.5 for FP propeller and dredge pump drives. The clutch torque capacities listed in the following pages are applicable. Maximum permissible speeds are also listed and should not be exceeded, regardless of application. Clutch engagement speed for any given application is governed solely and should not be exceeded, regardless of application. Clutch engagement speed for any given application is governed solely by the ability of the clutch to dissipate heat during the process. A graphical analysis of heat produced relative to energy input and speed will establish acceptable limits (see “start simulation” example below). The following additional information will be required for this calculation: clutch engagement speed, inertia and breakaway/stall torque of assembly to be accelerated and load characteristics.

### Coupling selection

The final choice of coupling should be discussed directly with the manufacturer. When coupling type and size are decided upon, Wichita can provide a provisional dimensional sketch to enable further design work to be completed. Following order confirmation, full drawings of the clutch/coupling combination are supplied upon request.

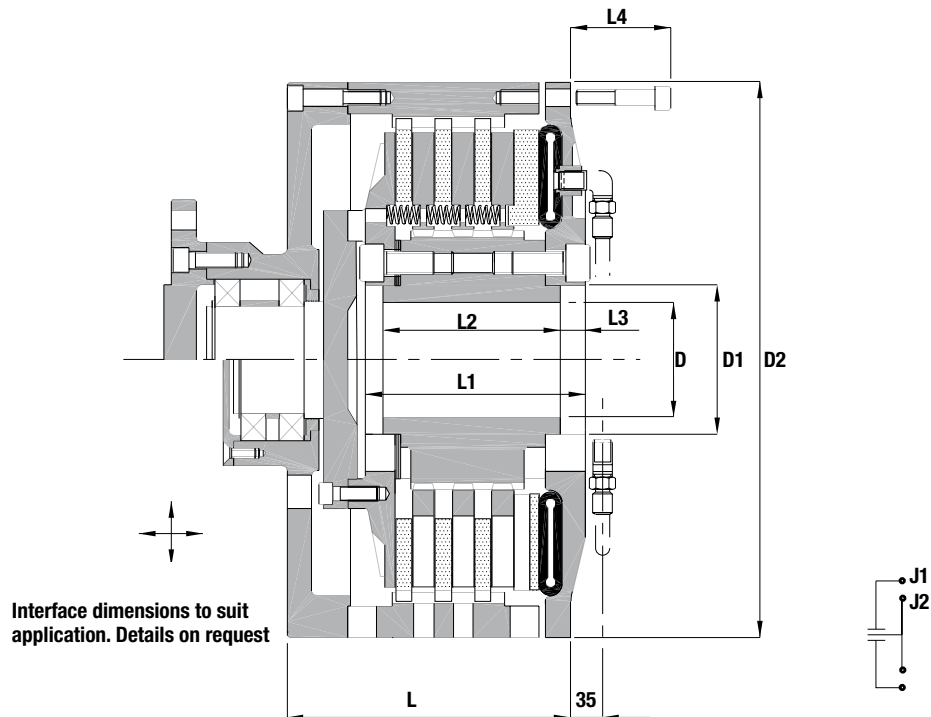
### Manufacturing excellence

Wichita MSV/BRG Marine Clutches are designed and manufactured within a DIN/ISO9001 and DIN/ISO14001 accredited quality environment and can be delivered fully approved to the requirements of the Marine Ship Classification Societies. With the exception of friction discs, all Wichita MSV/BRG parts are dynamically balanced in accordance with DIN/ISO 1940-1 Grade G6.3 or higher, to suit customer requirements.



## PERFORMANCE AND DIMENSIONS

### MSV/BRG/RA



Size	Torque (Nm) at 8.5 bar (1)	Inertia (kgm <sup>2</sup> )		Weight (kg)	Dimensions (mm) (2)								Max Speed (rpm)		Airtube Volume (dm <sup>3</sup> )(5)
		J1	J2		L	L1	L2	L3	L4	Dmax	D1	D2	(3)	(4)	
211 311	4300 6500	1.21 1.40	0.59 0.61	106 120	185 217	135 167	105 137	15 15	60 60	75	76	365	2000 2200	2200	0.50
214 314	7500 12000	3.36 3.99	1.54 1.71	212 246	247 282	168 203	128 163	18 18	70 70	110	114	445	1600 1900	1900	0.70
216 316 416	10400 15600 20800	6.92 7.83 8.81	2.69 3.09 3.47	300 343 385	272 306 342	183 228 271	140 185 228	18 18 18	92 92 92	115	120	530	1400 1700	1700	0.90
218 318 418	17600 26400 35200	10.76 12.41 13.75	4.19 4.95 5.69	384 444 496	272 312 350	190 235 278	145 190 233	21 21 21	92 92 92	125	150	560	1250 1500	1500	1.40
221 321 421	23900 36000 48000	16.80 18.95 20.10	10.76 12.35 13.93	562 642 722	330 376 422	247.5 293.5 339.5	196 242 288	25.5 25.5 25.5	90 90 90	165	175	635	1070 1350	1350	1.60
224H 324H 424H	42000 63000 83900	19.20 21.66 22.97	12.25 14.11 15.92	642 734 825	338 384 430	271 317 363	208 254 300	35 35 35	92 92 92	165	175	710	940 1100	1100	2.60
230H 330H 430H	91600 137400 183200	28.80 32.52 34.45	15.31 17.64 19.9	802 920 1030	422 486 550	329 393 457	266 330 392	35 35 35	95 95 95	215	225	865	750 1000	1000	5.10
236 336 436	138900 208300 277700	28.80 32.52 34.45	18.37 21.17 23.88	962 1104 1236	465 535 605	387 457 527	318 388 458	28 28 28	100 100 100	280	340	1040	630 800	800	6.80
242 342 442	198300 297500 396600	33.60 37.94 40.19	21.43 24.70 27.86	1122 1288 1442	465 535 605	328 400 472	238 310 382	40 40 40	110 110 110	355	530	1250	530 690	690	8.00
248 348 448	367200 550800 734400	38.40 43.36 45.93	24.49 28.23 31.84	1282 1472 1648	520 585 650	396 461 526	296 361 426	40 40 40	115 115 115	405	530	1420	470 600	600	13.50
260 360 460	731000 1096000 1462000	48.00 54.20 57.41	30.61 35.29 39.80	1602 1840 2060	630 705 780	468 558 648	360 450 540	38 38 38	120 120 120	530	575	1695	380 475	475	29.30

1) Selection torque=Nominal application torque x application safety factor "K". For preliminary selection use "K" is between 2 and 2.5.

Always obtain a selection confirmation.

2) Dimensions subject to change without notice. Use certified drawing dimensions only for final layouts.

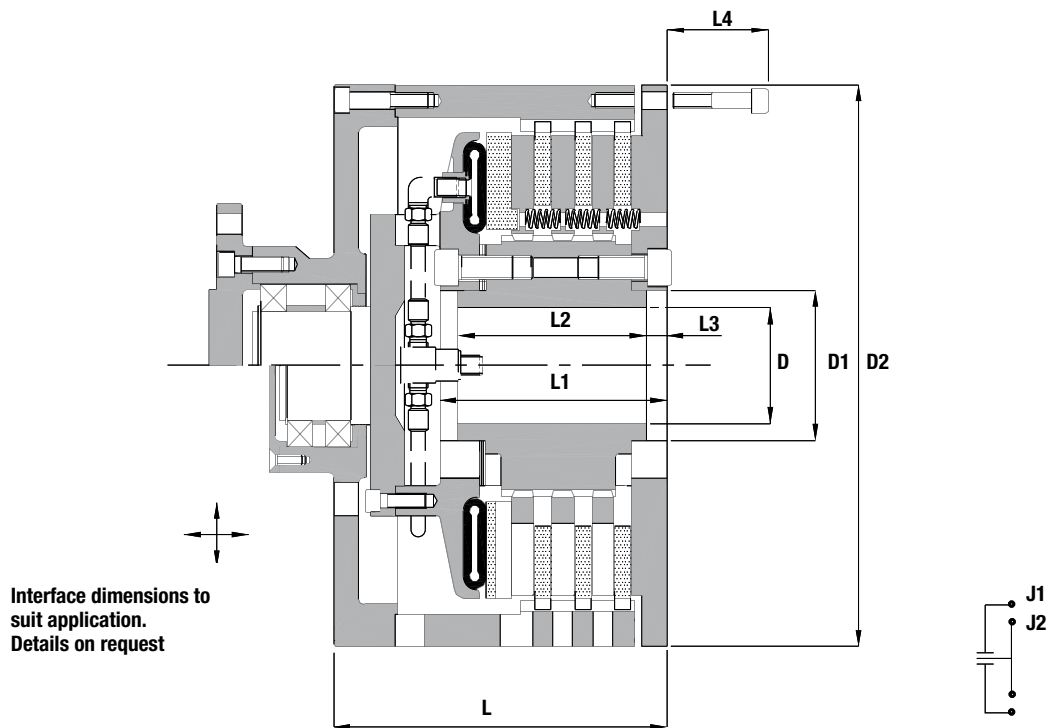
3) Guide for permissible engagement speed to be confirmed by an analysis of the clutch engagement work.

4) Max allowable running speed.

5) Max Airtube volume in worn condition.

## PERFORMANCE AND DIMENSIONS

### MSV/BRG/AX



Size	Torque (Nm) at 8.5 bar (1)	Inertia (kgm <sup>2</sup> )		Weight (kg)	Dimensions (mm) (2)								Max Speed (rpm)		Airtube Volume (dm <sup>3</sup> )(5)
		J1	J2		L	L1	L2	L3	L4	Dmax	D1	D2	(3)	(4)	
211 311	4300 6500	1.25 1.62	0.65 0.68	115 133	240 274	135 167	102 134	14 14	60 60	75	76	365	2000	2200	0.50
214 314	7500 12000	4.10 4.57	1.47 1.66	232 262	300 335	165 199	138 178	6 6	65 65	110	114	445	1600	1900	0.70
216 316 416	10400 15600 20800	6.79 7.19 8.93	2.72 3.09 3.48	303 335 389	300 335 370	168 203 238	130 165 200	14 14 14	85 85 85	115	120	530	1400	1700	0.90
218 318 418	17600 26400 35200	12.76 13.40 15.50	5.49 6.20 7.00	442 464 552	328 366 404	192 230 268	147 185 223	21 21 21	90 90 90	125	150	560	1250	1500	1.40
221 321 421	23900 36000 48000	17.11 19.27 21.50	9.56 11.12 12.70	552 632 713	364 410 456	210 256 302	158 204 250	26 26 26	92 92 92	165	175	635	1070	1350	1.60
227 327 427	47200 70700 94400	22.00 24.77 27.64	12.29 14.30 16.33	710 812 916	374 417 460	243 286 329	194 237 280	19 19 19	95 95 95	200	225	790	830	1100	2.60
236 336 436	138900 208300 277700	29.33 33.00 36.85	16.38 19.06 21.77	946 1082 1221	510 580 650	310 380 450	257 327 397	12 12 12	100 100 100	280	340	1050	630	800	6.80
242 342 442	198300 297500 396600	34.22 38.5 43.00	19.11 22.24 25.40	1104 1262 1424	524 587 660	278 350 442	188 260 332	40 40 40	110 110 110	355	530	1250	530	690	8.00
248 348 448	367200 550800 734400	39.11 44.00 49.14	21.84 25.42 29.00	1262 1442 1627	550 615 680	340 405 470	240 305 370	41 41 41	115 115 115	405	530	1420	470	600	13.50
260 360 460	731000 1096000 1462000	48.88 55.00 57.00	27.30 31.77 36.00	1577 1802 2030	635 710 785	398 488 578	290 380 470	38 38 38	120 120 120	530	575	1695	380	475	29.30

1) Selection torque=Nominal application torque x application safety factor "K". For preliminary selection use "K" is between 2 and 2.5.

Always obtain a selection confirmation.

2) Dimensions subject to change without notice. Use certified drawing dimensions only for final layouts.

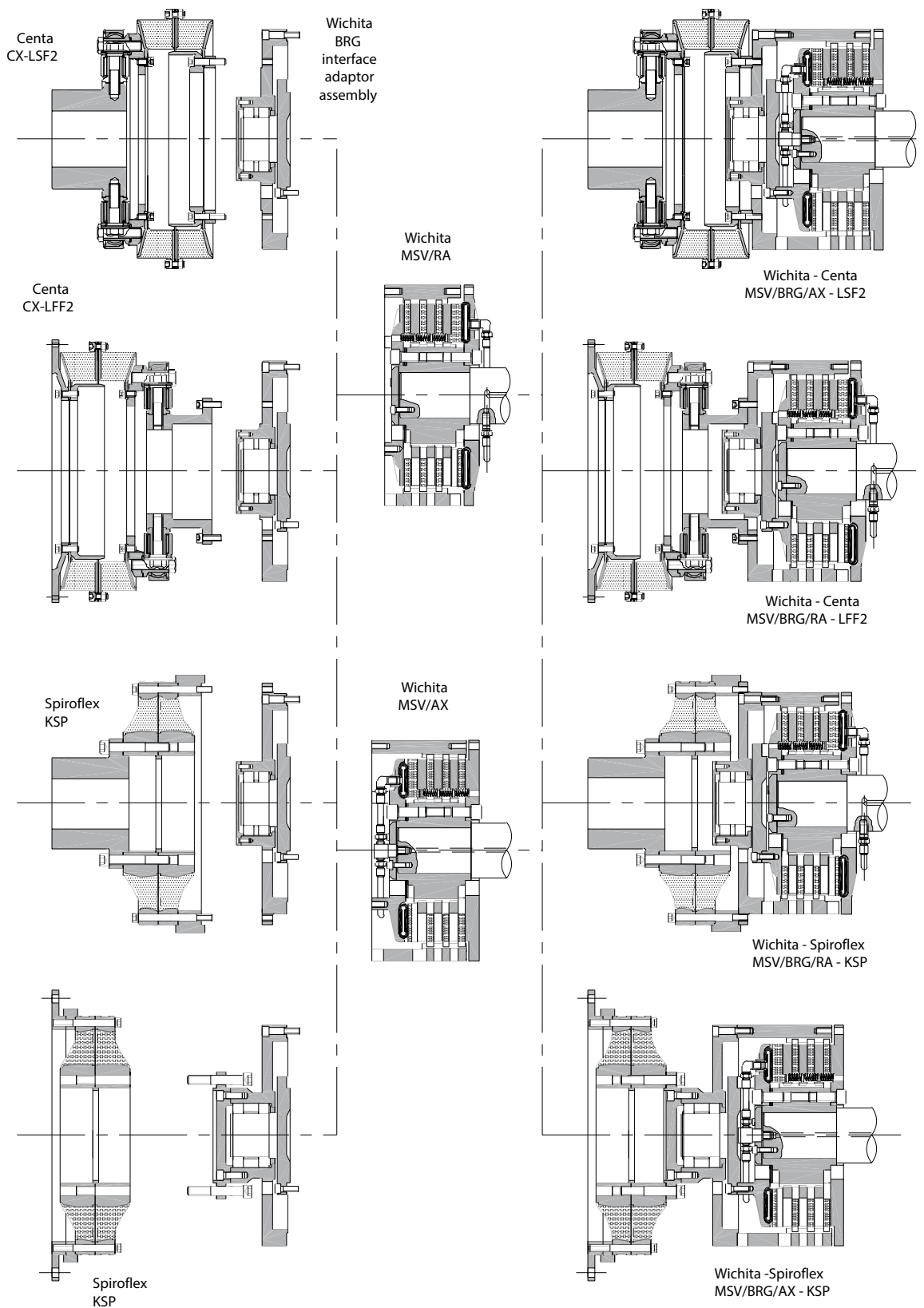
3) Guide for permissible engagement speed to be confirmed by an analysis of the clutch engagement work.

4 )Max allowable running speed.

5) Max Airtube volume in worn condition.



## EXAMPLES CLUTCH - CLUTCH ARRANGEMENTS



## ELECTRO - PNEUMATIC CONTROL UNITS TYPE 9908

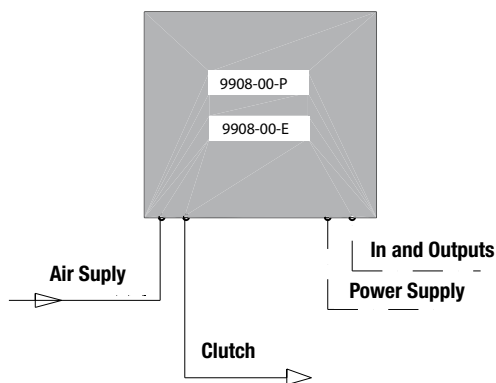
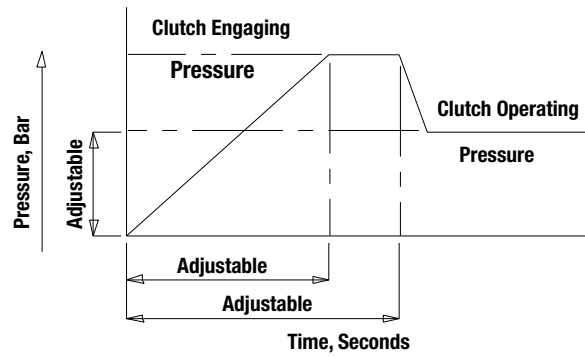
### Wichita Basic Electro - Pneumatic Control Panels

Base plate mounted control units for operation and monitoring of the Wichita Clutch in marine propulsion, dredge pump, jet pumps, PTI/PTO and thruster drives. Suitable for mounting and integration in standard control cabinets, panel or control cabinets, panels or control units.

#### Basic Clutch operation:

At the start signal of clutch will inflate in an adjustable time to maximum 8.5 bar supply (engagement) pressure for a soft start up.

After a set time (0-15 sec) to allow full start up and lock up of the clutch, the clutch engagement pressure will change over to an adjustable preset operating pressure.



#### Single Clutch Controls 9908-00:

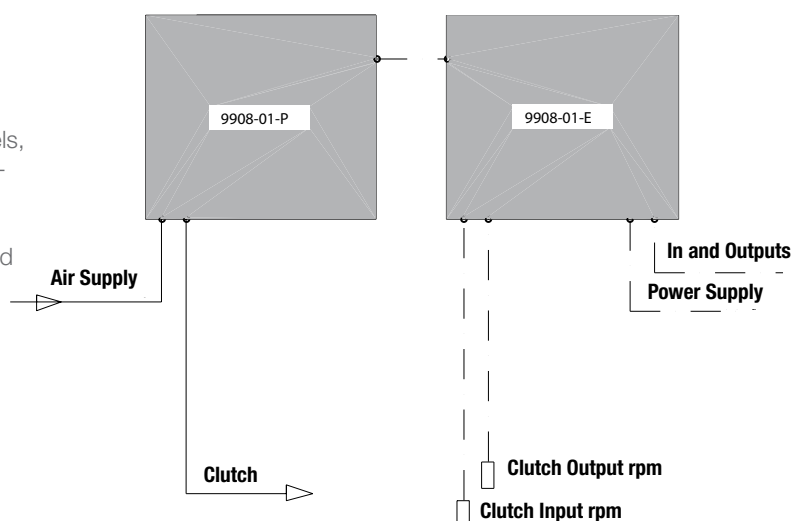
These consist of a combined pneumatic (9900-00-P) and electric (9908-00-E) panel, equipped with the required solenoids, pressure regulators, pressure switches and relays, all connected to an electric and pneumatic terminal for operation and monitoring of the clutch.

Air supply: max 10 bar  
Supply voltage: 24 VDC  
Potential free In and Outputs  
Detailed information available on request.

#### Single Clutch Controls 9908-01:

With engagement speed, clutch acceleration and clutch overload (slip). Consist of two separate panels, one pneumatic (9908-01-P) and one electric (9908-01-E) panel, equipped with the required detection units, solenoids, pressure regulators, pressure switches and relays, all connected to an electric and pneumatic terminal for operation and monitoring of the clutch.

Air supply: max 10 bar  
Supply voltage: 24 VDC  
Potential free In and Outputs  
Detailed information available on request.

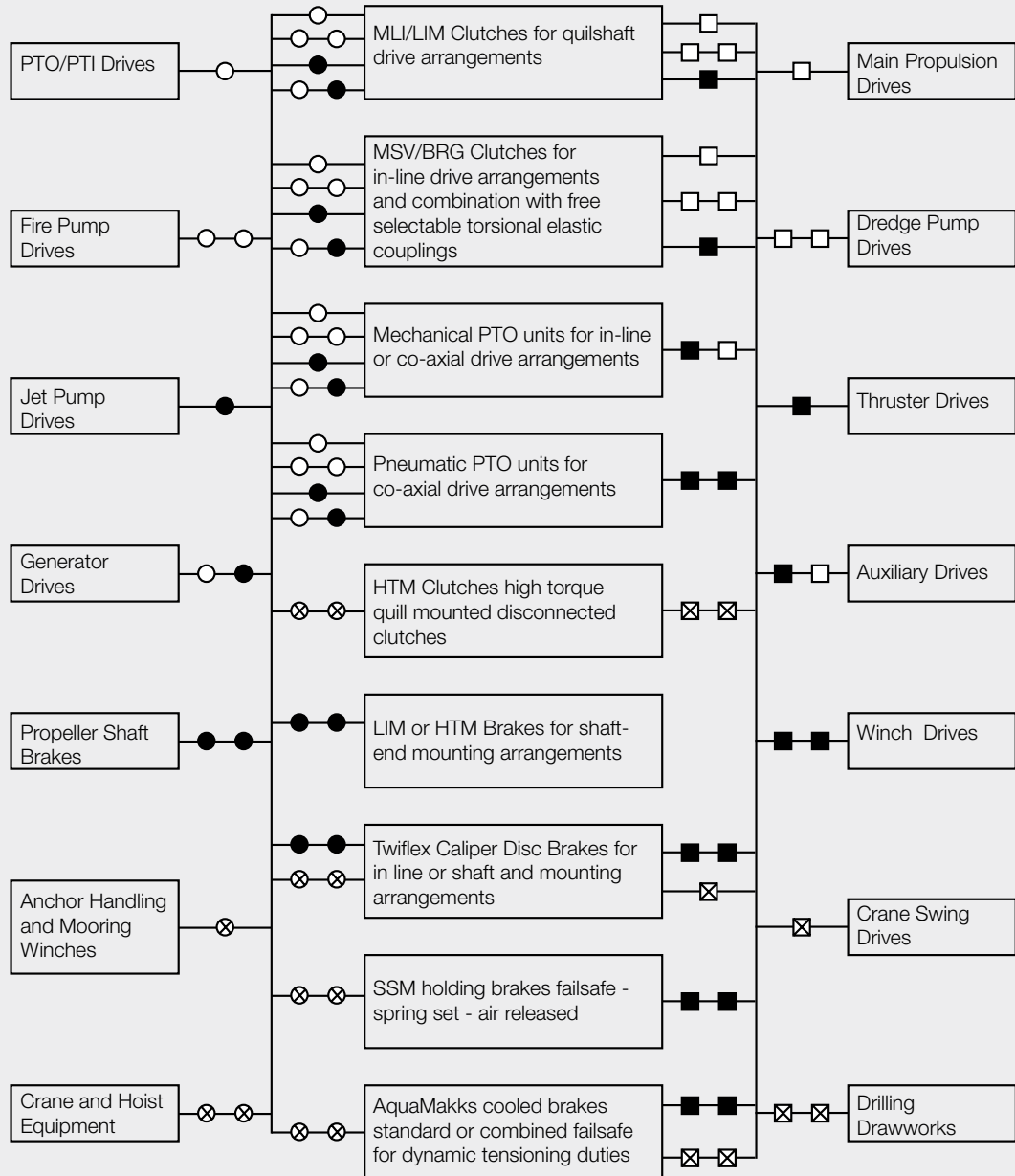


Above information is for basic control units and subject to change without notice.

Double or triple clutch control units for two or three speed dredge pump drives with quill mounted clutches are also available. (9908-02 and 9908-03)

## PRODUCT-APPLICATION OVERVIEW

**Wichita Heavy Duty expertise and products available for Marine and Offshore Applications**



Wichita designs and manufactures clutches, brakes, control systems and ancillary equipment within a total quality environment. The products are marketed and supported through an extensive network of Wichita facilities and distributors throughout the world.

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A REGAL REKNORD BRAND

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